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Predictive
Services

Northwest Area Fire Weather Annual Operating Plan

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INTRODUCTION

a. The Pacific Northwest Fire Weather Annual Operating Plan (AOP) constitutes an agreement between the Pacific Northwest Wildfire Coordinating Group (PNWCG), comprised of State, local government and Federal land management agencies charged with the protection of life, property and resources within the Pacific Northwest from threat of wildfire; and the National Weather Service (NWS), National Oceanic and Atmospheric Administration, U.S. Department of Commerce, charged with providing weather forecasts to the Nation for the protection of life and property.

The AOP provides specific procedural and policy information for the delivery of fire weather information to the fire management community in Pacific Northwest. It is the objective of the NWS and PNWCG to ensure that quality of service is maintained through a mutual analysis of services provided. The NWS and PNWCG work closely in all phases of the fire weather forecast and warning program to resolve concerns and avoid potential inconsistencies in products and services prior to delivery to fire agency customers. The goal of all agencies is to maximize firefighter and public safety through a coordinated delivery of consistent services.

Fire weather services are a critical building block to fire management agencies in decision-making because human lives and valuable natural resources are at risk. It is the role of the NWS to provide fire weather services and products to fire managers. It is the role of the fire management agencies to analyze and interpret fire weather forecasts into fire danger and fire potential predictions when making decisions essential to the success of fire management actions.

It is to the mutual advantage of PNWCG and NWS and in the public interest and for firefighter safety to coordinate efforts for weather services for fire management activities in the Pacific Northwest to minimize duplication of efforts and improve efficiency and effectiveness.

b. The general relationship between the NWS and the interagency fire management community is set forth in the following reference documents:

Interagency Agreement for Meteorological Services Among the Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and National Park Service of the U.S. Dept. of Interior, the Forest Service of the U.S. Dept. of Agriculture, and the National Weather Service of the U.S. Dept. of Commerce (National MOA or National Agreement);

National Weather Service NWSI 10-4: Fire Weather Services*;*

2012 National Mobilization Guide; and

Pacific Northwest Mobilization Guide

c. The PNWCG is comprised of the following Federal and State fire agencies: State of Oregon, Department of Forestry; State of Washington, Department of Natural Resources; USDA Forest Service, Pacific Northwest Region; USDI, National Park Service, Pacific West Region; USDI, Fish and Wildlife Service, Pacific Region; USDI, Bureau of Indian Affairs, Portland Area Office; USDI, Bureau of Land Management, Oregon and Washington.

NWS SERVICES AND RESPONSIBILITIES

The National Weather Service will collaborate with the fire agencies when proposing alterations to the fire weather program and services provided in the Pacific Northwest. NWS-developed proposals are provided to PNWCG for review, assessment, and comment prior to adoption and implementation. NWS considers any concerns expressed by PNWCG, especially as related to performance integrity, in its assessment of change proposals in the fire weather program and other services provided.

Fire Weather Services

1. CORE GRIDS AND WEB-BASED FIRE WEATHER DECISION SUPPORT

National Digital Forecast Database (NDFD) grids are used to produce a wide variety of products and services for fire weather support. Operational status of NWS grid elements is available at the following website:

http://www.weather.gov/ndfd/resources/NDFD_element_status.pdf.

NWS offices produce several web-based digital planning tools to assist fire weather customers. These include FARSITE weather input data, Hourly Weather Graphs, Point Forecast Matrices, Activity Planners, Hourly weather graphs and 48-Hour Element meteograms. Please contact your local servicing NWS office with any questions or for more information.

2. FIRE WEATHER WATCHES AND RED FLAG WARNINGS

Fire Weather Watches and Red Flag Warnings are issued when the **combination of dry fuels *and* weather conditions** support extreme fire danger and/or fire behavior. These statements alert land management agencies to the potential for widespread new ignitions which could overwhelm Initial Attack activities, or conditions which could cause control problems on existing fires, etc. Any of these outcomes could pose a threat to life and property.

Fire Weather Watch: A Fire Weather Watch is issued when there is a high potential for the development of a Red Flag Event. A watch is issued 18 to 96 hours in advance of the expected onset of criteria. The watch may be issued for all, or selected portions within a Fire Weather Zone or region. The overall intent of a Fire Weather Watch is

to alert forecast users at least a day in advance for the purposes of resource allocation and fire fighter safety.

Red Flag Warning: A Red Flag Warning is used to warn of impending or occurring Red Flag conditions. Its issuance denotes a high degree of confidence that **weather *and* fuel** conditions consistent with local Red Flag Event criteria will occur in 48 hours or less. Longer lead times are allowed when confidence is very high or the fire danger situation is critical. Forecasters can issue a warning for all or selected portions within a Fire Weather Zone.

Prior to issuance, all Red Flag Warnings are coordinated with affected agencies and neighboring fire weather offices, in order to assess fuel conditions and general fire danger. Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning is also relayed by telephone to the dispatch office(s) affected by the watch/warning. Red Flag Warnings and Fire Weather Watches will be issued using a bulleted format.

3. SPOT FORECASTS

Spot forecasts are site specific forecasts issued by the NWS in support of wildfire suppression and natural resource management. Spot forecasts may also be issued for hazardous materials incidents, search and rescue missions and other threats to public safety. All spot forecast requests should be accompanied by a representative onsite weather observation.

Issuance Criteria: Spot forecasts are non-routine products issued at the request of the user. WFOs will provide spot forecast service upon request of any federal, state, tribal, or local official who represents the spot forecast is required to support a wildfire.

For non-wildfire purposes, resources permitting, WFOs will provide spot forecast service under the circumstances and conditions outlined in NWS Instruction 10-401 http://www.weather.gov/directives/sym/pd01004001curr.pdf.

Spot forecasts will not be provided to private citizens or commercial entities not acting as an agent of a government agency.

Requesting a Spot Forecast: Spot forecast requests are normally made via the Internet through local NWS fire weather pages or from http://www.weather.gov/fire. When web access is not available, spot forecasts may be requested and disseminated via fax - using the spot forecast request form D-1 (NWSI-401) in appendix E. An electronic fillable pdf version of WS form D-1 can be found at http://www.nwccweb.us/content/products/fwx/publications/NW_AOP/spotRequestForm.pdf

The requestor must provide information about the location (latitude/longitude), slope aspect, drainage name, fuel types, top and bottom elevations of fire or project, size of fire or project, ignition time, and contact names and telephone numbers of the responsible land management personnel. **It is critically important that each spot forecast request also include quality, representative observations at, or near, the site. A detailed description of the observation location relative to the project (if not at the site) should be provided. The description should include, at a minimum, distance and direction from the project or fire site, station elevation and aspect.**

Fire agencies are strongly encouraged to call the WFO after submitting a spot request to ensure it was received properly. The WFO will attempt to notify field personnel and/or the dispatch office whenever there is a significant change in the expected weather.

For more detailed instructions on using NWS Spot please see:
http://www.wrh.noaa.gov/sew/NW_SpotRequestInstructions.pdf

Updates: Spot forecasts are considered one-time requests, and are not routinely updated. Spot forecasts may be updated when new representative observations are available to the forecaster or if the forecaster deems the current forecast does not adequately represent current or expected weather conditions. Land or emergency management personnel are encouraged to contact the appropriate WFO for a spot update if forecast conditions appear unrepresentative of the actual weather conditions. The spot forecast will be corrected when a typographical or format error is detected that could confuse the intended meaning. Updated and corrected spot forecasts will be delivered to users in the same manner as the original spot forecast when possible.

Spot Forecast Feedback: Good communication between fire managers and the NWS is critical for quality spot forecast services. Land management personnel should provide feedback to the NWS forecasters about the quality and accuracy of the spot forecast. Responsibility for providing fire line observations for the verification of forecast accuracy rests with the land management agencies. Onsite observations taken during the operational period the forecast is valid for are to be provided back to the WFO via the feedback box online spot forecast form, or by phone, fax or email.

4. FIRE WEATHER PLANNING FORECASTS

The Fire Weather Planning Forecast is a zone-type product used by land management personnel primarily for input in decision-making related to pre-suppression and other planning. The decisions impact firefighter safety, protection of the public and property, and resource allocation. Weather parameters represent average conditions across the given zone.

Headlines are included in the Fire Weather Planning Forecast (FWF) whenever a Red Flag Warning or Fire Weather Watch is in effect or to highlight other critical weather information. A brief, clear, non-technical discussion of weather patterns that will influence the forecast area will begin the forecast with the emphasis on the first two days of the forecast period. A discussion of latter periods will be included if significant weather is expected to impact safety or operations. Sky and weather, maximum and minimum temperature and relative humidity, wind speed and direction, Haines index, Lightning Activity Level and chance of wetting rain are included in the FWF by all of the WFOs in the Pacific Northwest. Several offices also forecast mixing height and transport winds.

Two forecasts will be issued daily during fire season – a morning forecast between 5 AM and 9 AM and an afternoon forecast around 3 PM. Once per day forecasts will continue through the spring and fall burning seasons at the request of the land managers with some offices continuing land management forecasts through the winter. Local start and stop dates shall be coordinated between the NWS offices and fire weather customers, including the geographic area Predictive Services Units.

5. NFDRS FORECASTS

The National Weather Service role in NFDRS is forecasting weather input which, combined with fire agency input, allows the NFDRS software in WIMS to predict the next day's fire danger indices. These indices impact agency resource management decisions, firefighter safety, and protection of the public and property.

Numerical point and/or zone trend forecasts for NFDRS stations are prepared and disseminated to WIMS by 1545 each afternoon from April or May through early October. The point forecasts are used to compute the expected NFDRS indices valid the following day. The number of NFDRS point forecasts made by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500 however, a forecast will not be produced for those stations.

6. TELEPHONE BRIEFINGS

All NW NWS Offices provide daily fire weather phone briefings each morning during fire season. Local Fire weather users are encouraged to participate in these briefings. The forecaster hosting the briefing will verbally highlight current and forecast fire weather conditions with the help of weather graphics on an internet web page or through a GoToMeeting® webinar. Briefing times, conference call telephone numbers and passcodes can be obtained by contacting the local WFO. A link to the web briefings can be found on the local fire weather page.

7. FORECAST VERIFICATION

Routine verification is made on Red Flag Warnings and NFDRS forecasts. Results of the verification will be published in the Fire Weather Annual Summary. Spot forecast turnaround time and other statistics are available from your local NWS office.

8. INCIDENT METEOROLOGIST SERVICES

Each WFO in the Pacific Northwest has 2 to 3 Incident Meteorologists (IMETs) on staff available for wildfire, HAZMAT, Search and Rescue or other emergency dispatches. To request an IMET, contact the appropriate fire agency dispatch office.

9. NON-FORECAST SERVICES:

There are several duties that fall into the non-forecast services including, but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

Experienced fire weather forecasters will be available to help instruct the weather sections of standard fire behavior training courses offered by federal, state and local government fire agencies. This includes S-190 through S-590 and other courses. In addition, a forecaster will also be available for special speaking engagements and customer consultations. For scheduling purposes, requests for an instructor or speaker should be made at least three weeks in advance.

WILDLAND FIRE AGENCY SERVICES AND RESPONSIBILITIES

Provide coordination and recommendations for interagency fire weather activities in Oregon and Washington through the PNWCG. Continually review standards of performance for applicability and adequacy.

Provide weather observations seven days a week during fire season and coordinate and cooperate with the NWS in fire weather forecasting. The agencies will seek the advice and counsel of the NWS regarding observational issues (e.g. moving remote automatic weather stations).

Recognize that other severe weather emergencies may require the services of the fire weather forecaster to assist in WFO operations.

USER AGENCY RESPONSIBILITIES:

There are several responsibilities of the user agencies including:

- Entering of 1300 PST NFDRS observations in WIMS.
- Site observations for Spot forecast requests. **A representative observation from the burn site is required for all prescribed fire spot forecast requests.**
- Quality Control of RAWS observations
- Timely maintenance of RAWS sites.

JOINT RESPONSIBILITIES

Work cooperatively as partners to maintain and improve fire weather services to assure full compliance with mutually established performance, reliability, priority, and time standards.

Recognize that lands for which the States are responsible for wildland fire protection in Oregon and Washington, and the lands for which the respective Federal Agencies are responsible, are intermingled or adjacent in some areas, and wildland fires on these intermingled or adjacent lands may present a threat to the lands of the other. Recognize the primary role of the States in administering smoke management plans in their respective states.

Prepare an Annual Operating Plan (AOP – this document) that includes each WFO with fire weather areas of responsibility in Oregon and Washington as required in the National Fire Weather Agreement and fire and smoke management responsibilities (as appropriate) of DNR, ODF and NWCC Predictive Services. Fire weather zone and Predictive Service Area maps will be included in the AOP. The AOP will meet the guidelines specified in NWSI 10-404:
http://www.nws.noaa.gov/directives/sym/pd01004004curr.pdf

Annually review the performance of the NWS and NWCC Predictive Services in meeting the needs of the fire management community. This review will be used to help determine what program adjustments are needed and appropriate. PNWCG directed subject matter experts (SMEs) and the NWS MICs from Boise, Medford, Pendleton, Portland, Seattle and Spokane shall conduct the review. NWCC Predictive Service, the NWS, PNWCG SMEs and any interested members of the fire community shall meet annually around February. The meeting will evaluate the past season fire weather services and recommend changes for the next fire season. Proposed changes in fire weather services for the upcoming fire weather season will be discussed and if agreed upon reflected in the AOP. AOP sections from individual offices are expected to be finalized no later than April 1st (drafts are requested the February meeting) so that the compiled Pacific Northwest AOP can be submitted to the PNWCG and NWS signatories for final approval. Changes after April 1st should, if at all possible, be held off until after fire season. If extenuating

circumstances require significant additional changes to be made for the current fire season, the AOP will need to be reapproved by the signing officials.

Respond to the other party's proposals within thirty (30) days, or advise the other party when the proposal will be addressed if the NWS or the PNWCG are unable to meet or discuss the proposal within their respective groups in that time frame. Except when necessary to meet emergency needs, significant proposals are expected to be discussed at the annual meetings

Cooperate and coordinate plans for the weather-related training of fire personnel and fire weather forecasters to ensure that training needs are met.

Collaborate in fire weather research and development.

New for the 2012 Fire Season

- Hysplit trajectory output will be available for spot forecast requests. Refer to Appendix F for additional information.

- The experimental change to the Fire Weather Planning Forecast (FWF) format will continue in 2012. **No change to the content will occur.** The format change is intended to produce a shorter and visually cleaner product that will facilitate faster editing by National Weather Service forecasters via removing larger indents.

  Please provide feedback on this experimental change to your local forecast office.

2012

Seattle Fire Weather

Operating Plan

Changes for 2012:

Official zone names changing for Fire Weather Zones 656, 657, 658, and 659. This change does *not* affect zone numbers or boundaries. The change will mainly affect header information on Red Flag Warnings and Fire Weather Watches.

Hysplit dispersion trajectories are available upon request with Spot Forecasts. This product is available on an experimental basis through December 31, 2012.

Washington DNR has replaced manual NFDRS sites at Sedro-Woolley and Forks with RAWS stations.

Many RAWS sites in Appendix 2 updated to include more accurate location information.

LOCATION

The National Weather Service Forecast Office in Seattle is located at the NOAA Western Regional Center in northeast Seattle. The address is:

NOAA/National Weather Service
7600 Sand Point Way N.E.
Seattle, WA 98115-0070

HOURS OF OPERATION

The National Weather Service Office in Seattle is open 24 hours a day, 7 days a week, every day of the year. During Fire Season, the Fire Weather Desk is staffed by a certified and experienced Fire Weather Forecaster between the hours of 7:00 a.m. and 5:00 p.m.

In 2012, *weekday* Fire Weather desk staffing and twice-a-day Fire Weather Planning Forecasts will begin on or around June 11.

Seven-day-a-week Fire Weather Desk staffing will begin no later than Monday, June 25, but weekend coverage could begin sooner if fuels, weather conditions, or user needs warrant. The need for continued Fire Weather desk staffing will start being evaluated around Oct. 1. The exact dates of Fire Weather desk staffing can be adjusted based on weather conditions and user requirements or requests.

When a certified Fire Weather Forecaster is not on duty to handle fire-related Spot Forecast Requests, Spot Forecast support and phone briefings will be handled by staff meteorologists. A Fire Weather Forecaster can be made available with prior arrangements.

Certified Fire Weather Forecast Staff

Andy Haner – Fire Weather Program Co-Leader / IMET
Carl Cerniglia – Fire Weather Program Co-Leader / IMET
Brad Colman – Meteorologist-in-Charge (MIC)
Ted Buehner – Warning Coordination Meteorologist (WCM)
Kirby Cook – Science and Operations Officer (SOO)
Brent Bower - Service Hydrologist
Danny Mercer – Fire Weather Forecaster / Instructor
Jeff Michalski – Fire Weather Forecaster
Doug McDonnal – Senior Forecaster

PHONE NUMBERS

Fire Weather Desk	(206) 526-6088 (unlisted)
Public Forecaster (24/7)	(206) 526-6083 (unlisted)
Brad Colman, Meteorologist in Charge	(206) 526-6095 ext 222
Andy Haner, Co-Program Leader	(206) 526-6095 ext 251
Carl Cerniglia, Co-Program Leader	(206) 526-6095 ext 252

E-MAIL

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brad.colman@noaa.gov

INTERNET

Our Internet home page can be found at:

http://www.wrh.noaa.gov/sew/ or http://www.weather.gov/seattle

Click the "Fire Weather" link on the main left-hand menu to access Fire Weather products.

FORECAST DISTRICT

The Seattle Fire Weather Office has forecast responsibility for most state and federal land in Western Washington. The Portland Fire Weather Office handles the Gifford Pinchot National Forest south of a line from Mt. St. Helens to Mt. Adams. The Seattle Fire Weather area of responsibility is divided into 7 distinct areas or districts for Fire Weather forecasting. The areas are further sub-divided into 13 separate Fire Weather Zones. Each Fire Weather Zone is comprised of Fire Weather stations that exhibit similar weather and/or weather changes.

FORECAST PRODUCTS

10. CORE GRIDS

An overview of gridded products is given in the NWS Services and Responsibilities section in the region-wide AOP.

11. FIRE WEATHER WATCHES AND RED FLAG WARNINGS

Fire Weather Watches and Red Flag Warnings will be issued when the **combination of dry fuels *and* weather conditions** support extreme fire danger and/or fire behavior. A further overview of the Fire Weather Watch and Red Flag Warning programs is given in the NWS Services and Responsibilities section of the region-wide AOP.

A. LOCAL CRITERIA FOR FUEL DRYNESS

Fire Weather Watches and Red Flag Warnings will be considered in the Seattle Fire Weather District when the Energy Release Component (ERC), as described by the National Fire Danger Rating System (NFDRS), is equal to or greater than the 90th percentile value in the frequency distribution of historical ERCs. For the Fire Weather Zones above 1500 feet of elevation, the Northwest GACC Dryness Levels will also be considered when in the "Yellow" or "Brown" category.

The conditions described below must either be occurring or forecast to occur. The table below shows the 90th percentile ERC values that will be used for each Fire Weather Zone.

Zone 649:	17
Zones 650, 651, 653, 656, 657	25
Zones 652, 654, 655, 658, 659	31
Zone 661	34
Zone 662	73

B. LOCAL CRITERIA FOR WEATHER

Strong East Winds and Low Humidity (Westside zones only)

- Nighttime hours (midnight to 7 am):

  Duration: 5 consecutive hours

  Wind Speed: 20 ft /10 min sustained greater than or equal to 10 mph (RAWS)
  - OR –
  30 ft /2 min sustained greater than or equal to 12 mph (ASOS)

RH: less than or equal to 35%.

- Daytime hours (7 am to midnight):

  Duration: 4 hours in an 8-hour block

  Wind Speed: 20 ft/10 min sustained greater than 10 mph (RAWS)
  - OR –
  30 ft /2 min sustained greater than 12 mph (ASOS)

  RH: less than or equal to 30%, except less than or equal to 25% on the Gifford-Pinchot NF south of the Cowlitz River.

  Verifying Stations for Strong East Wind episodes are listed and described in Appendix 3.

  Strong West Winds and Low Humidity (Eastside Zone 662 only)

  Duration: at least 4 hours

  Wind Speed: 20 ft /10 min sustained greater than or equal to 15 mph (RAWS)

  RH: less than or equal to 25%.

  Stehekin and Camp Four RAWS sites will be used to verify Red Flag Warnings in Zone 662.

  The conditions described above for Wind and Low Humidity events should be fairly widespread in both time and space across the Fire Weather Zone - as opposed to an isolated incident or a diurnal occurrence that lasts for only a few hours.

  Lightning

  Weather Criteria for lightning is defined as significant lightning, either wet or dry, within a particular Fire Weather Zone. The thunderstorm activity must be at least scattered (25+% aerial coverage) or greater within a particular zone; the forecast LAL must be 3 or higher.

Very Dry and Unstable Air Mass

Western Washington Fire Weather Zones 649-661: Mid *and* High-level Haines of a 5 or 6, *and* RH of 25% or less.
Eastern Washington Fire Weather Zone 662: High-level Haines of a 6 *and* RH of 15% or less.

The most current Quillayute, Salem, and Spokane soundings will be used to produce the mid- and high-level Haines values used to issue and verify this Red Flag Warning event.

12. SPOT FORECASTS

An overview of the Spot Forecast program is given in the NWS Services and Responsibilities section of the region-wide AOP. Hysplit dispersion trajectories are available upon request and on an experimental basis through December 31, 2012. See the Spot Request Instructions for details on how to make Hysplit dispersion trajectories available with your Spot Forecast Request.

Requesting a Spot Forecast from NWS Seattle: From Seattle's Fire Weather web site at "http://www.wrh.noaa.gov/firewx/?wfo=sew", click the red "Spot Request" Button in the upper-left corner of the page. On the next page, click "Submit a new Spot Request", then fill out the form. Detailed instructions for completing the Spot Request Form are available at:
http://www.wrh.noaa.gov/sew/SpotRequestInstructions.pdf.

13. FIRE WEATHER PLANNING FORECASTS

An overview of Fire Weather Planning Forecasts is given in the NWS Services and Responsibilities section of the region-wide AOP.

During the traditional fire season, NWS Seattle issues twice-daily Fire Weather Planning Forecasts by 8:30 AM PDT and 3:30 PM PDT. A scaled-down version of the Fire Weather Planning Forecast will be issued once daily from Monday through Friday during the "off-season", roughly from mid-October through May. The off-season forecasts are available in WIMS and on the Internet by 9:00 AM PT.

14. NFDRS TREND FORECASTS

An overview of NFDRS Trend Forecasts is given in the NWS Services and Responsibilities section of the region-wide AOP. NWS Seattle issues these forecasts as *zone averages*.

15. INTERNET-BASED BRIEFING CALLS

Statewide, Internet-based, Fire Weather briefing calls will be conducted each day at 9:00 AM PDT during peak fire season, and as needed near the beginning and end of

the season. Contact this office for the appropriate telephone number and conference ID to participate in the conference calls.

AGENCIES SERVED

The Seattle Fire Weather Office serves the following state and federal land management agencies:

U.S. Forest Service - Olympic National Forest, Mt. Baker-Snoqualmie National Forest, Gifford-Pinchot National Forest and Okanogan-Wenatchee National Forest

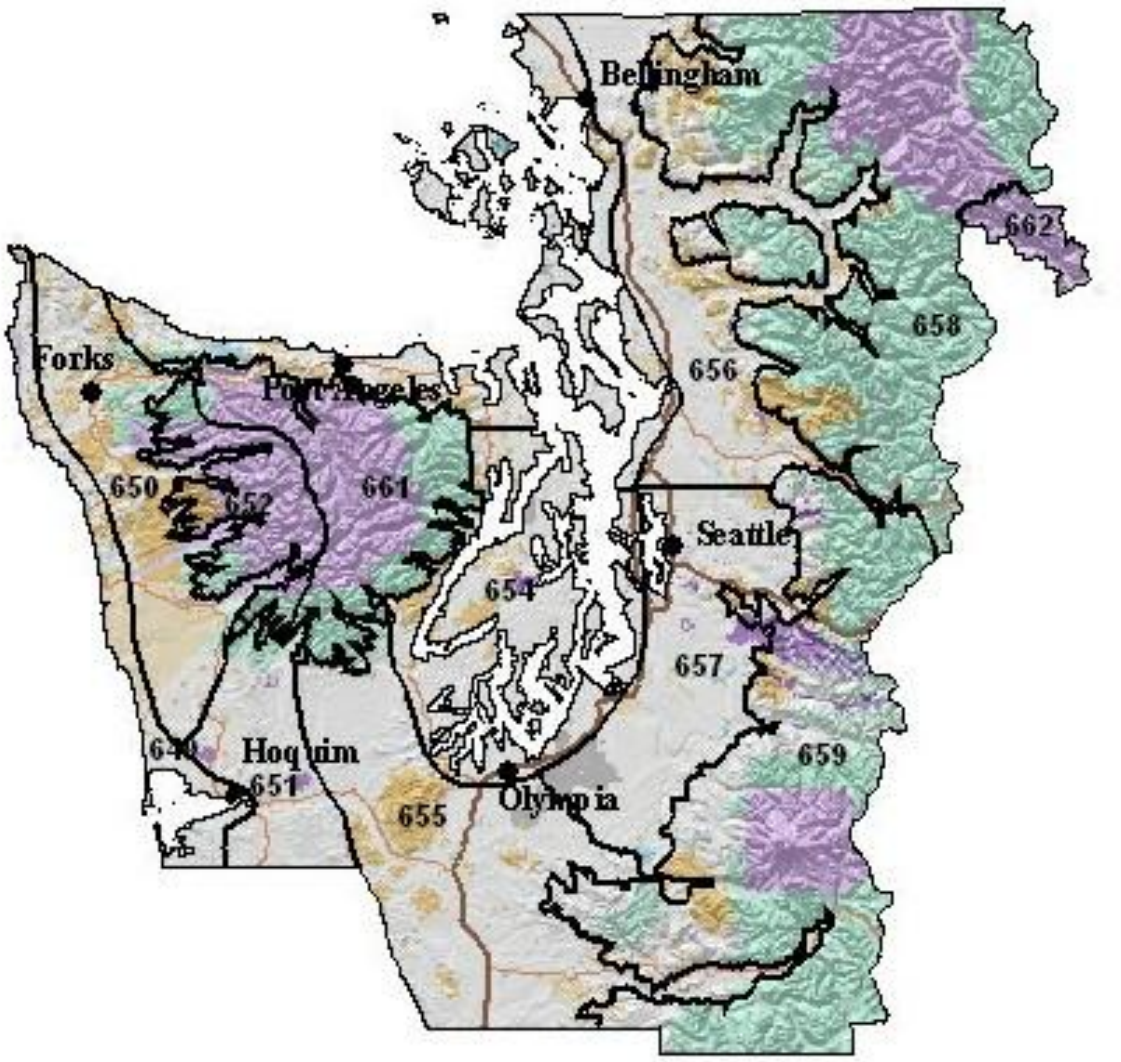
National Park Service - North Cascades National Park, Olympic National Park, Mt. Rainier National Park and San Juan Islands National Historical Park

Bureau of Indian Affairs - Olympic Peninsula Agency and Puget Sound Agency

Washington Department of Natural Resources -
Resource Protection Division and the Northwest, Olympic, South Puget Sound, and Pacific Cascade regions

Department of Defense – Joint Base Lewis-McChord Forestry Program

Seattle Fire Weather Zones



Appendix 1: Fire Weather Zone Descriptions

Appendix 2: NFDRS Fire Weather Station List

Appendix 3: Stations Verifying East Wind Events

Appendix 1
FIRE WEATHER ZONE BOUNDARY DESCRIPTIONS

Zone 649 – **The North and Central Coastal Strip**: The western boundary of Fire Weather Zone 649 is the Pacific coastline in Clallam, Jefferson, and Grays Harbor counties. The eastern boundary includes all land within 5 miles of the Pacific coastline in Clallam, Jefferson, and Grays Harbor Counties. It extends south along the eastern border of the Makah Indian Reservation and the east shore of Ozette Lake to the town of Quillayute in Clallam County. In Jefferson County, the eastern boundary crosses US Highway 101 approximately 5 miles east of the Hoh Indian Reservation, and then parallels the coast south until crossing US Highway 101 again along the border between Jefferson and Grays Harbor counties 5 miles inland from the coast. The eastern border continues south in Grays Harbor County until it crosses highway 101 at New London and US Highway 12 approximately 5 miles east of Aberdeen. The boundary then turns south, following US Highway 101 to the southern border of Grays Harbor County.

Zone 650 – The North Coastal Lowlands: Zone 650 includes all land 5 miles inland from the coast to an elevation of 1500 ft on the western side of the Olympic Mountains in Clallam, Jefferson, and Grays Harbor Counties. The area includes the low elevation portion of the Calawah, Bogachiel, Hoh, Clearwater, Queets, Quinault, and the Humptulips River drainages below 1500 ft. The southern boundary begins where the Humptulips River crosses the southern boundary of Zone 652, stretching southwest along the Humtulips River until it intersects the eastern boundary of Zone 649 in Grays Harbor County.

Zone 651 – The Central Coastal Lowlands: The western boundary of Zone 651 follows the Humptulips River and the eastern boundary of Zone 649 in Grays Harbor County. The 1,500-foot contour interval on the south side of the Olympic Mountains forms the northern border of Zone 651. The county line between Grays Harbor County and Pacific County forms the southern boundary. The eastern border follows the West Fork of the Satsop River south across US Highway 12 near the town of Satsop, continuing south along the west side of the Lower Chehalis State Forest.

Zone 652 – The West Portion of the Olympic Mountains: Zone 652 includes lands at or above 1500 feet located in the western half of Clallam and Jefferson counties, and the far northeast corner of Grays Harbor County. The area includes the Pacific Ranger District office on the west and southwest side of the Olympic National Forest. Zone 652 is the wetter, west side of the Olympic Peninsula that reflects a greater influence of marine air in both weather and fire danger. The area includes all lands at or above 1,500 feet drained by the Calawah, Sitkum, Bogachiel, Hoh, Clearwater, Queets, Quinault, and Humptulips rivers in Clallam, Jefferson, and Grays Harbor counties.

Zone 661 – The East Portion of the Olympic Mountains: Zone 661 includes land at or above 1,500 feet on the east side of the Olympic Peninsula. The area typically exhibits higher fire danger than Zone 652 due to less rainfall, less influence of marine air, and a higher occurrence of lightning activity. The area includes lands at or above 1,500 feet drained by the Wynoochee, Satsop, North and South Fork Skokomish, Hamma Hamma, Duckabush, Dosewallips, Quilcene, Dungeness, and the Elwha rivers.

Zone 653 – The Strait of Juan de Fuca, the San Juan Islands and the Northwest Interior Lowlands: Zone 653 includes all lands below 1500 feet msl on the north side of the Olympic Peninsula from the town of Sekiu on the west to a point just south of Discovery Bay on the east. The boundary extends southeast across Admiralty Inlet, east across the northern tip of the Kitsap Peninsula and Puget Sound to Interstate 5 along the border between King and Snohomish Counties. The eastern boundary of Zone 653 parallels I-5 north through Snohomish, Skagit and Whatcom counties to the Canadian border.

Zone 654 – The Central and South Puget Sound Lowlands: Zone 654 includes lowland areas below 1,500 feet near the central and southern portion of Puget Sound and Hood Canal. The eastern boundary parallels I-5 south though King and Pierce counties, west through Olympia in Thurston County, then northwest along U.S. Highway 101 to city of Shelton. The boundary continues northwest from Shelton to the southeast corner of the Olympic National Forest in Mason County, then follows the 1500 ft contour northeast along the Hood Canal in Mason and Jefferson Counties.

Zone 655 – The Black Hills and the Southwest Interior Lowlands: The eastern border of Zone 655 follows the West Fork of the Satsop River south across US Highway 12 near the town of Satsop, continuing south along the west side of the Lower Chehalis State Forest to the town of Brooklyn in northeast corner of Pacific County. From Brooklyn the boundary extends southeast to the town of Pe El in the eastern portion of Lewis County and then continues southeast to the town of Vader in Lewis County. The border then runs east along the southern border of Lewis County to the 1,500-foot contour along the west slopes of the Cascades. The boundary follows the contour on the north and south sides of the Cowlitz river valley. It then continues north along the 1,500-foot contour to the boundary between Thurston and Lewis Counties. The zone boundary then extends east to the intersection of Pierce, Thurston, and Lewis Counties. It then follows the Pierce/Thurston County boundary northwest to the intersection of I-5 and then west along I-5 to US Highway 101. Zone 655 then extends northwest paralleling 101 to the southeast corner of the Olympic National Forest in Mason County. The area includes the Capitol State Forest and the Lower Chehalis State Forest.

Zone 656 – Northeast Puget Sound Lowlands Generally Below 1500 Feet *(new name in 2012)*: Zone 656 includes all lands in Whatcom, Skagit, and Snohomish Counties east of I-5 below an elevation of 1500 feet. This includes the following river drainages...North, Middle and South Forks of the Nooksack River, Skagit River from town of Sedro Woolley to the town of Marblemount (including Lake Shannon and Baker Lakes in the Baker River drainage), Sauk River from the confluence of the Sauk and

Skagit Rivers south along SR 530 to the town of Darrington, the Stillaguamish River from Darrington to the town of Arlington, and the Skykomish River along US Highway 2 from the town of Monroe to six miles east of the town of Skykomish.

Zone 657 – Southeast Puget Sound Lowlands Generally Below 1500 Feet *(new name in 2012)*: Zone 657 includes land below 1500 feet east of I-5 in King and Pierce Counties. The southern border of the zone follows the border between Pierce and Thurston Counties. This area includes the following river valleys below 1500 feet that reach into the Cascade Mountains...North, Middle and South Fork of the Snoqualmie River, White River including Mud Mountain Lake, Puyallup River, and the Nisqually River to the town of Ashford.

Zone 658 –West Slopes of the North Cascades Generally Above 1500 Feet *(new name in 2012)*: Zone 658 includes lands at or above 1500 feet in Whatcom, Skagit, Snohomish, and the northeast portion of King County in the Skykomish River drainage. The area includes the North Cascades National Park and the Ross Lake National Recreational Area, and the Mt. Baker, Darrington, and Skykomish Ranger Districts of the Mt. Baker-Snoqualmie National Forest. The eastern boundary is the Cascade crest.

Zone 659 –West Slopes of the Central Cascades Generally Above 1500 Feet *(new name in 2012)*: Zone 659 includes lands at or above 1500 feet in King, Pierce, and Lewis Counties, and the extreme northern portion of Skamania County. This includes the North Bend and White River Ranger Districts of the Mt. Baker-Snoqualmie National Forest, Mt. Rainier National Park, and the Cowlitz Valley Ranger District of the Gifford Pinchot National Forest. The eastern boundary of this zone runs along the crest of the Cascades.

Zone 662 – The East Portion of North Cascades National Park and the Lake Chelan National Recreational Area:
Zone 662 includes federal lands managed by the North Cascades National Park east of the Cascade crest in Chelan County. This area includes the Lake Chelan National Recreational Area and the North Cascades National Park South Unit.

Appendix 2

2012 NWS Seattle NFDRS Station Index

ZONE	NAME	TYPE	WIMS NUMBER	OWNER	*LAT*	*LON*	*ELEV*
649	Quillayute	Metar	450120	DNR	47.938	-124.555	194
	Hoquiam	Metar	450314	DNR	46.971	-123.933	18
650	Ellis Mtn.	RAWS	450130	DNR	48.129	-124.305	2671
	Forks	RAWS	450105	DNR	47.955	-124.385	303
	Black Knob	RAWS	450321	BIA	47.414	-124.103	650
651	Minot Peak	RAWS	450306	DNR	46.892	-123.417	1768
652	Toms Creek	RAWS	450121	USFS	48.022	-123.959	2400
	Owl Mtn.	RAWS	450211	DNR	47.766	-123.965	3398
	Humptulips	RAWS	450312	USFS	47.367	-123.758	2400
661	Hurricane Ridge	RAWS	450124	NPS	47.970	-123.499	5262
	Cougar	RAWS	450117	USFS	47.923	-123.108	3000
	Jefferson	RAWS	450911	USFS	47.554	-123.215	2200
	Buck Knoll	RAWS	450131	DNR	48.028	-123.311	1630
653	Bellingham	Metar	451411	DNR	48.799	-122.539	157
	Everett	Metar	451614	DNR	47.923	-122.283	604
	Whidbey Island	Metar	450701	DNR	48.349	122.651	46
654	Bremerton	Metar	450801	DNR	47.490	-122.765	440
	Quilcene	RAWS	450207	USFS	47.823	-122.883	62
	Sea-Tac	Metar	451716	DNR	47.445	-122.314	427
	Tacoma (McChord Field)	Metar	451808	DNR	47.138	-122.476	322
655	Olympia	Metar	451001	DNR	46.973	-122.903	203
	Chehalis	RAWS	451103	DNR	46.610	-122.908	262
656	Sedro Woolley	RAWS	451507	DNR	48.522	-122.224	217
	Marblemount	RAWS	451504	NPS	48.539	-121.446	357
657	Enumclaw	RAWS	451702	DNR	47.220	-121.964	756
	Ashford	RAWS	451809	DNR	46.755	-122.110	1421
658	Kidney Creek	RAWS	451409	USFS	48.920	-121.943	3485
	Hozomeen	RAWS	451412	NPS	48.981	-121.078	1700
	Sumas Mtn.	RAWS	451415	DNR	48.908	-122.223	3200
	Finney Creek	RAWS	451509	USFS	48.392	-121.818	2160
	Gold Hill	RAWS	451613	USFS	48.243	-121.546	3350
	Johnson Ridge	RAWS	451611	USFS	47.801	-121.286	2048

659	Fire Trng Academy	RAWS	451721	USFS	47.457	-121.665	1580
	Stampede Pass	Metar	451711	DNR	47.277	-121.337	3960
	Lester	RAWS	451705	USFS	47.210	-121.489	1637
	Greenwater	RAWS	451718	DNR	47.116	-121.596	2405
	Ohanapecosh	RAWS	451119	NPS	46.731	-121.571	1950
	Kosmos	RAWS	451105	DNR	46.524	-122.190	2100
	Hager Creek	RAWS	451115	USFS	46.564	-121.628	3600
	Orr Creek	RAWS	451919	USFS	46.354	-121.604	3000
662	Stehekin	RAWS	452121	NPS	48.347	-120.720	1230

Appendix 3
Method of Red Flag Verification for East Wind

Many Fire Weather stations in Western Washington do not show good exposure to strong east winds. Therefore, Red Flag Warnings for East Wind episodes will verify in the following zones when criteria are met at the following defined stations. A station is considered any ***NFDRS*** site. Additional non-NFDRS weather sites will be queried for additional wind, temperature and relative humidity data to add value to the verification process.

Zone 649:	Any two stations within the zone
Zone 650:	Any single station within the zone **or** Quillayute ASOS
Zone 651:	At the Minot RAWS site **– or –** at both the Shelton and Hoquiam ASOS sites.
Zone 652:	Any two stations within the zone **– or –** at both the Ellis Mtn and Hurricane Ridge RAWS sites.
Zone 653:	Any two stations within the zone
Zone 654:	Any two stations within the zone (including Olympia ASOS)
Zone 655:	Any station within the zone **– or –** at both the Shelton ASOS and Minot Peak RAWS sites
Zone 656:	Any single station under 1500 feet within Whatcom, Skagit, or Snohomish County
Zone 657:	Any single station under 1500 feet within King or Pierce County
Zone 658:	Any single station within the zone **– and –** one of the following sites: Greenwater, Lester, Stampede Pass, or Kosmos Mountain
Zone 659:	Any two stations within the zone
Zone 661:	Any single station within the zone **– or –** *both* the Ellis Mtn. and Minot Peak RAWS sites.

2012

Portland Fire Weather

Operating Plan

Shadow Lake Fire 2011 – Photo by Julia Ruthford

PORTLAND FIRE WEATHER

New For 2012: The Portland office will no longer staff a fire weather meteorologist at the Northwest Coordination Center. The NWCC will submit a Resource Order requesting an IMET when conditions warrant.

LOCATION

National Weather Service Forecast Office
5241 NE 122nd Avenue
Portland, OR 97230-1089

HOURS

The National Weather Service Office is open 24 hours a day, 7 days a week. The fire weather duty desk will be staffed with a **CERTIFIED** fire weather forecaster between the hours of 0600 and 1600 seven days a week during fire season, normally from Memorial Day through mid-October. The fire weather desk is staffed with a **CERTIFIED** fire weather forecaster from 0700 to 1500 Monday through Friday during Spring burning (mid to late March through Memorial Day), and also during the fall burning period (mid-October through early November).

STAFF

Steve Todd	Meteorologist in Charge
Tyree Wilde	Warning Coordination Meteorologist
Scott Weishaar	Fire Weather Program Leader and IMET
Shawn Weagle	Asst. Fire Weather Program Leader, IMET Trainee
Jon Bonk	Fire Weather Forecaster and IMET
Clinton Rockey	Fire Weather Forecaster
Chris Collins	Back-up Fire Weather Forecaster
Kevin Donofrio	Back-up Fire Weather Forecaster

CONTACT

Telephone

Fire Weather Desk	503-326-2420
Lead Forecaster (24 hrs)	503-326-3720
FAX	503-326-2598

Internet: http://www.wrh.noaa.gov/firewx/?wfo=pqr

Email

scott.weishaar@noaa.gov
shawn.weagle@noaa.gov

FORECAST DISTRICT

Portland services fire weather zones 601-608, 612, and 660. This area covers:

Northwest Oregon and Southwest Washington, North Oregon Cascades including the Columbia River Gorge (to about Hood River). South Washington Cascades and adjacent lowlands of Clark County. The Portland Office is also responsible for spot forecasts in the east districts of the Mt. Hood National Forest (Barlow District).

See the attached map for a graphic description of individual areas/zones of the Portland district.

AGENCIES SERVED

U.S. Forest Service (USFS)
U.S. Bureau of Land Management (BLM)
Oregon Department of Forestry (ODF)
Washington Department of Natural Resources (WDNR)
Various urban and rural local fire districts

FORECAST SERVICES

1. FIRE WEATHER GRIDS

Fire Weather grids from the Portland Fire Weather Office can be found at:
http://www.weather.gov/forecasts/wfo/sectors/pqrFireDay.php

2. RED FLAG WARNING/FIRE WEATHER WATCH

Fuels must be critically dry and fire danger moderate to high before a Red Flag Warning or Fire Weather Watch is issued from the Portland office. Evaluations of fuel conditions will be made in accordance with current NFDRS values and in consultation with fire managers. Assuming these conditions are met, Fire Weather Watches and Red Flag Warnings are issued for the following events:

A. COMBINATION OF STRONG WIND AND LOW HUMIDITY

Daytime: RH 25% or less **AND** 10-minute wind speed 10 mph AND/OR gusts to 25 mph or more for 4 hours.

Night: RH 35% or less **AND** 10-minute wind speed of 15 mph AND/OR gusts to 30 mph or more for 3 hours.

B. DRY AND UNSTABLE AIR MASS

Mid and/or High level Haines 6, RH 25% or less, AND critical fuel conditions.

C. LIGHTNING

Scattered thunderstorm coverage, critical fuels **AND** no appreciable change in fuel conditions after the event.

RED FLAG VERIFICATION

Red Flag warnings will be verified using the following criteria:

A. COMBINATION OF STRONG WIND AND LOW HUMIDITY

NIGHTTIME CRITERIA:

ZONES 601 AND 602: Two stations (RAWS) must report 35% humidity or less **AND** 10-minute wind speed of 10 mph **AND/OR** gusts to 25 mph or more for three hours in an 8-hour time block. ***Key RAWS***: Cedar Creek, Rockhouse1, and South Fork.

ZONES 603 AND 612: Rockhouse1 RAWS reporting 35% humidity or less **AND** 10-minute wind speed of 15 mph **AND/OR** gusts to 30 mph or more for four hours in an 8-hour block **AND** one other RAWS reporting 35% humidity or less **AND** 10-minute wind speed of 10 mph **AND/OR** gusts to 25 mph or more for two hours**.** ***Key RAWS***: Rockhouse1, Goodwin Peak, High Point, and Cannibal Mountain.

ZONE 604: Two stations (airports) must report 30% humidity or less **AND** 2-minute wind speed of 15 mph **AND/OR** gusts to 25 mph or more for at least four hours in an 8-hour block. Typically occurs in the north part of the valley**.** ***Key STATIONS***: Troutdale, Portland, Vancouver, and Hillsboro.

ZONES 605, 607, AND 660: One station (RAWS) must report 35% humidity or less **AND** 10-minute wind speed of 10 mph **AND/OR** gusts to 25mph or more for

four hours in an 8-hour block, **AND** at least **TWO** other stations reporting 35% humidity or less **AND** 10-minute wind of 10 mph **AND/OR** gusts to 25 mph for at least **TWO** hours. **Key RAWS**: Horse Creek, Log Creek, Wanderer's Peak, Kosmos, Canyon Creek, Orr Creek, Elk Rock, and 3-Corner Rock. NOTE: Includes stations from zone 659.

ZONES 606 AND 608: One station (RAWS) must report 30% humidity or less **AND** 10-minute wind speed of 10 mph **AND/OR** gusts to 25 mph or more for at least four hours in an 8-hour block, **AND ONE** other station must report the same conditions for at least **ONE** hour. **Key RAWS**: Brush Creek, Trout Creek, Yellowstone, and Emigrant.

DAYTIME CRITERIA (ALL ZONES):

At least two stations within a zone must report 25% humidity or less **AND** wind-speed of 10 mph or more (except 15 mph in zone 604) **AND/OR** gusts to 25 mph for at least four hours in an 8-hour block.

Typically for east wind (offshore flow), but can occur in the Coast Range and central/south Willamette Valley with north to northeast wind. Can also occur in the Central Cascades and foothills with shallow marine surges (west to northwest wind).

B. CRITICALLY DRY AND UNSTABLE AIR MASS (HAINES INDEX 6)

At least **ONE** station within a zone must report 25% humidity or less, measure a mid and/or high-level Haines 6, or exhibit inferred mid and/or high-level Haines 6 characteristics, **AND** fuel conditions (Dryness Levels) are in the "BROWN", or "YELLOW" under extreme or unusual conditions.

C. LIGHTNING IN COMBINATION WITH DRY FUELS

"Dry thunderstorm" Red Flag criteria is defined as follows: *Abundant lightning in conjunction with sufficiently dry fuels*.

Abundant Lightning:

1) Number of lightning strikes that meet climatologically significant criteria, or
2) Areal coverage of lightning such as "Scattered" or $\geq$ 25%

Sufficiently Dry Fuels:

1) GACC dryness levels remaining out of the 'green' category on the day of and the day following a thunderstorm event, or
2) ERC or BI values meeting climatologically significant percentiles, or
3) Land management declaration

This is a very rare event which, climatologically, has the highest likelihood of occurrence in the south half of the Willamette N.F..

Dryness Levels **SHOULD** be in the "BROWN", and expected lightning frequency is such that multiple starts (5-7) are expected. (Typically "scattered" thunderstorm coverage). Under unusual or extreme conditions, a Red Flag Warning can also be issued when the Dryness Level is "YELLOW". Basically, "scattered" thunderstorms that do not produce enough precipitation to appreciably change the Dryness Levels (from "BROWN" or high "YELLOW").

3. SPOT FORECASTS

Detailed weather information beyond what is presented in the general forecast may be obtained with a spot forecast request. Spot forecasts may be requested by a telephone call to the fire weather forecaster or through the spot forecast request web page available on the Portland fire weather web page at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pqr

4. GENERAL FORECASTS

Fire Season: Regularly scheduled general fire weather forecasts are issued twice per day by certified fire weather forecasters at 0900 and 1445.

Prescribed Burning Season: Regularly scheduled land management forecasts are issued by certified fire weather forecasters Monday through Friday at 0900 and 1430.

The Portland office will include wind gusts when the 10-minute wind speed is 10 mph or greater.

"Dryness Levels" (as developed by the Northwest Coordination Center) for the NWS Portland forecast district will be included in the morning forecast. Refer to the NWCC Predictive Services web site for more information. www.nwccweb.us

5. NFDRS TREND FORECASTS

Numerical point forecasts for NFDRS stations are prepared and disseminated to WIMS by 1545 each afternoon from April through early October. The point forecasts are used

to compute the expected NFDRS indices valid the following day. The number of NFDRS point forecasts made by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500 however, a forecast will not be produced for that station.

TELEPHONE BRIEFINGS

Daily internet conference call: Portland fire weather conducts a daily weather briefing at 0940 PDT via a conference call from about early June through early October. Fire weather users are encouraged to participate. The forecaster hosting the briefing will verbally highlight current and forecast fire weather conditions with the help of an internet web page. Conference call participants can follow along with the discussion while viewing graphics displayed on the web page. Conference telephone numbers (and passcodes) can be obtained by contacting the Portland weather office. The URL for the briefing graphics is: **http://www.wrh.noaa.gov/pqr/fwb.php**. Graphics will be available by 0700 PDT.

Unscheduled telephone briefings: Verbal weather briefings can also be obtained at any time. A certified fire weather forecaster should be requested to conduct the briefing during fire weather hours. Otherwise, a briefing will be available from the general forecast staff.

INCIDENT METEOROLOGIST SERVICES

Portland has two certified Incident Meteorologists (IMETs) on staff available for wildfire, HAZMAT, or other emergency dispatches. To request an IMET, contact the appropriate fire agency dispatch office.

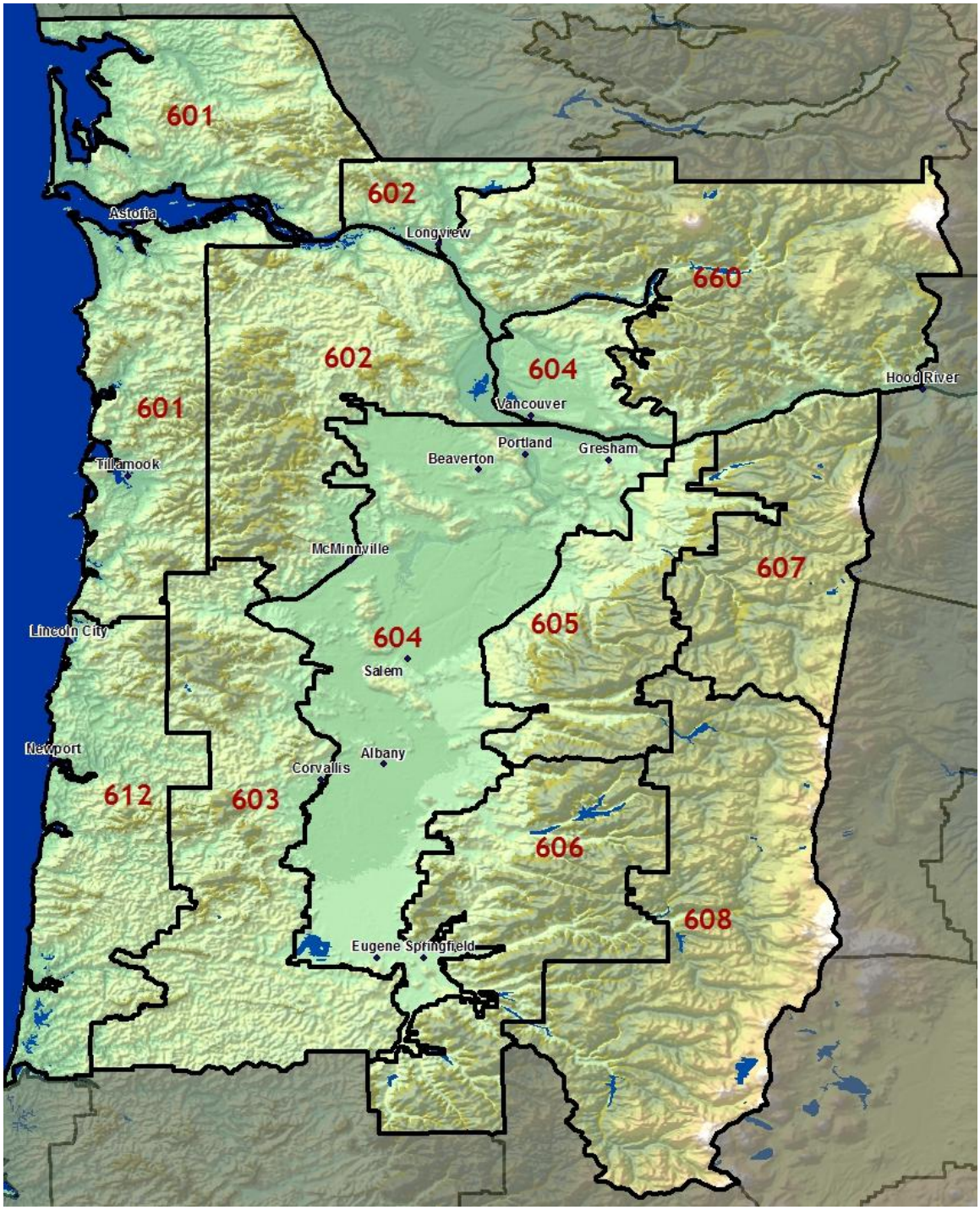
OTHER SERVICES

FIRE WEATHER TRAINING AND LECTURES

An experienced fire weather forecaster will be available to help instruct the weather sections of standard fire behavior training courses offered by federal, state and local government fire agencies. This includes S-190 through S-590 and other courses. In addition, a forecaster will also be available for special speaking engagements. For scheduling purposes, requests for an instructor or speaker should be made at least three weeks in advance.

To request an instructor contact Shawn Weagle at Portland NWS Forecast Office at (503) 326-2420 or by email at shawn.weagle@noaa.gov.

Portland Fire Weather Zones



GEOGRAPHIC ZONE DESCRIPTIONS

Zone 601 – North Oregon and South Washington Coast including Willapa Hills

Represents the South Washington and North Oregon coastal strip including adjacent west slopes of the Oregon Coast Range and the Willapa Hills of Washington. This zone includes the north portion of the Siuslaw N.F., ODF, and WA DNR protected private land.

Extends east-west from the crest of the Oregon Coast Range to the Pacific Ocean. Extends north-south from the north boundary of Pacific County, WA to Oregon State Highway 22 along the eastern boundary of ODF regulated use area NW-2. The Washington section of this zone represents Pacific and Wahkiakum counties in their entirety.

Zone 612 – Central Oregon Coast

Represents the Central Oregon coastal strip including adjacent west slopes of the Oregon Coast Range. Includes southern portions of the Siuslaw N.F. and ODF protected private land.

Extends east-west from the crest of the Oregon Coast Range to the Pacific Ocean. Extends north-south from Oregon State Highway 22 to the Umpqua River along the west edge of the Siuslaw National Forest including ODF regulated use area SL-2.

Zone 602 – North Coast Range

Represents the east slopes of the North Oregon and South Washington Coast Range. Mostly private land under ODF and WA DNR protection.

Bounded on the west by Coast Range crest. Bounded on the east, in Oregon, by the west periphery of the Willamette Valley and Columbia River. Bounded on the east, in Washington, by the contour of the Willapa Hills/Coast Range. Extends north-south from the north boundary of Lewis County, WA to Oregon State Highway 22.

Zone 603 – Central Oregon Coast Range

Represents the east slopes of the Central Oregon coast range. Mostly ODF protected private land.

Bounded on the west by the Coast Range crest. Bounded on the east by the western periphery of the Willamette Valley. The north boundary is along Oregon State Highway 22. The south boundary lies along Oregon State Highway 38.

Zone 604 – Willamette Valley including Clark County Lowlands of Washington

Bounded on the west and east, in Oregon, by the foothills of the Coast Range and Cascades. Bounded on the west and east, in Washington, by the Columbia River and South Washington Cascade foothills. Extends north-south from Lewis County, WA to just south of Cottage Grove Reservoir.

Zone 605 – North Oregon Cascade Foothills

Represents foothill elevations of the North Oregon Cascades. Mostly ODF protected private land.

Bounded by the east periphery of the Willamette Valley on the west and the National Forest boundary of the Mt. Hood and Willamette National Forests on the east. Extends from the Columbia River on the north, to the Crabtree Creek Divide, approximately 10 miles south of Oregon State Highway 22 (Santiam Highway) on the south.

Zone 606 – Central Oregon Cascade Foothills

Represents the foothill elevations of the Central Oregon Cascades. Mostly ODF protected private land.

Bounded by the east periphery of the Willamette Valley on the west (Interstate 5 south of Eugene) and the Willamette Forest boundary, and extreme north Umpqua Forest boundary on the east. Extends from Crabtree Creek Divide roughly 10 miles south of Oregon State Highway 22 on the north to the Lane/Douglas county line on the south.

Zone 607 – North Oregon Cascades

Represents all of the Mt. Hood NF west of the Cascade Crest along with interior Cascade wilderness areas.

Bounded by the Columbia River on the north, the Cascade Crest on the east, and the Mt. Hood forest boundary on the south and west.

Zone 608- Central Oregon Cascades

Represents the Willamette NF in its entirety along with interior high Cascade wilderness areas.

Bounded by the Cascade Crest on the east and the Willamette Forest boundary on the south, west, and north.

Zone 660 – South Washington Cascades and Foothills

Represents the Wind River, Mt. Adams and St. Helens Ranger districts of the Gifford Pinchot NF as well as adjacent WDNR protected Cascade and Green Mountain foothills to the south and west. It excludes the Columbia River lowlands of Clark County, WA, which is part of zone 604.

Bounded on the east by the Gifford Pinchot east forest boundary (approximately the Cascade Crest). The southeast boundary follows the Columbia River west to the Clark County, WA line. Then, the boundary heads north to northwest following the contour of the Cascade foothills to the Lewis River, then west along the Lewis River to the Columbia River. The boundary follows the Columbia River north to Kelso, WA. The north boundary extends from Kelso, WA northeast following the contour of the Green Mountain/Cascade foothills to the Lewis County line, then east to the Cascade Crest, bi-secting the Gifford Pinchot NF along the north boundary of the St. Helens and the Mt. Adams Ranger districts.

PORTLAND FORECAST AREA NFDRS STATION LIST

601 COASTAL ZONES

STN #	NAME	COUNTY	T	AGENCY	LAT	LON	ELEV	ASPECT	T	R	S
450404	Willapa	Pacific	M	DNR	46.60	123.60	60	W-in valley	13N	8W	10
450407	Huckleberry	Pacific	R	DNR	46.50	123.40	2500	S-on mid-slope	12N	6W	22
350208	Tillamook	Tillamook	R	ODF	45.26	123.50	22	Flat	1S	9W	29
350215	Cedar Creek	Clatsop	R	USFS	45.21	123.77	2240	Ridgetop	4S	9W	22

602 COASTAL ZONES

451207	Castle Rock	Cowlitz	M	DNR	46.30	122.90	213	S-in valley	9N	2W	14
451209	Abernathy	Cowlitz	R	DNR	46.35	123.10	2000	Ridgetop	10N	3W	19
350216	South Fork	Tillamook	R	ODF	45.58	123.49	2120	S- on ridge	1N	7W	12
350308	Miller	Columbia	R	ODF	46.02	123.27	1090	S-in valley	6N	5W	11
350505	Rye Mountain	Tillamook	R	BLM	45.22	123.53	1960	S-on ridge	4S	7W	9

603 COASTAL ZONES

351710	Rockhouse1	Polk	R	ODF	44.93	123.47	2000	Mid-slope	7S	7W	
351811	Wilkinson Ridge	Benton	R	USFS	44.33	123.72	1370	W-on ridge	14S	9W	24
352542	Clay Creek	Lane	R	ODF	44.02	123.21	1600		19S	7W	29
352547	Village Creek	Lane	R	BLM	44.25	123.47	1500	SE-on ridge	16S	7W	1
352550	High Point	Lane	R	BLM	43.91	123.38	1935	N-on ridge	19S	6W	23

604 WILLAMETTE VALLEY

451306	Vancouver	Clark	M	DNR	45.70	122.70	210	Flat	2N	1E	28
451301	Larch Mtn.	Clark	R	DNR	45.72	122.35	1150	Ridge-top	3N	4E	29
351813	Finley	Benton	R	USFWS	44.42	123.33	330	Valley	13S	5W	20
352621	Willow Creek	Lane	R	BLM	44.03	123.17	456	Valley	18S	4W	4

605 CASCADE ZONES

350727	Horse Creek	Clackamas	R	BLM	44.94	122.40	2000	Ridge	7S	3E	23
350728	Eagle Creek	Clackamas	R	ODF	45.37	122.33	744	SW-mid-slope	2S	4E	28
352025	Jordan	Marion	R	ODF	44.72	122.69	778	In valley	10S	1E	9

606 CASCADE ZONES

352024	Yellowstone	Linn	R	BLM	44.60	122.42	3080	NE-in valley	11S	3E	22
352552	Trout Creek	Lane	R	BLM	44.11	122.58	2400	SW-on ridge	17S	2E	9
352553	Brush Creek	Lane	R	BLM	44.28	122.85	2300	N-on ridge	15S	1W	7
352562	Green Mountain	Lane	R	BLM	43.73	122.81	3064	Ridge	21S	1W	21

607 CASCADE ZONES

350718	Red Box	Clackamas	R	USFS	45.03	121.92	3250	SW-on mid-slope	6S	7E	23
350605	Locks	Multnomah	R	ODF	45.67	121.88	128	Valley	2N	7E	12
350725	Si Si Lookout	Clackamas	M	USFS	44.92	121.83	5617	SW-on ridge	7S	8E	33
350726	Wanderer's Peak	Clackamas	R	USFS	45.11	122.20	4350	S-on ridge	5S	5E	28
350811	Blue Ridge	Hood River	R	USFS	45.52	121.72	3780	S-on ridge	1S	9E	6
350604	Log Creek	Multnomah	R	USFS	45.51	121.90	2500	W-on mid-slope	1S	7E	12
350902	Clear Lake	Wasco	M	USFS	45.15	121.58	4458	W-on ridge	5S	10E	8

608 CASCADE ZONES

352554	Pebble	Lane	R	USFS	44.23	121.98	3560	SW-on mid-slope	15S	7E	29
352557	Fields	Lane	R	USFS	43.73	122.28	3360	Flat- on ridge	22S	4E	11
352558	Emigrant	Lane	R	USFS	43.47	122.22	3840	S-on ridge	24S	5E	21
351909	Boulder Creek	Marion	R	USFS	44.98	122.00	3570	Flat-in valley	10S	7E	7
352546	Sugarloaf	Lane	R	USFS	43.66	122.63	4328	S-on ridge	22S	1E	13

612 COASTAL ZONES

351604	Cannibal	Lincoln	R	USFS	44.35	123.89	1946	Ridgetop	14S	10W	16
352545	Goodwin Peak	Lane	R	USFS	43.93	123.89	1826	Ridgetop	19S	10W	9
352559	Dunes	Lane	R	USFS	43.96	124.12	20	Mid-slope	18S	12W	34

660 CASCADE ZONES

451208	Elk Rock	Cowlitz	R	USFS	46.35	122.60	2500	Ridgetop	10N	3E	35
451917	Buck Creek	Skamania	R	USFS	46.06	121.54	2690	Meadow on mid-slope	7N	10E	34
451921	Canyon Creek	Skamania	R	USFS	45.92	122.17	2500	W-on ridge	5N	5E	8
451929	3 Corner Rock	Skamania	R	DNR	45.72	122.04	3000	Ridgetop	3N	6E	26
451924	Dry Creek	Skamania	R	USFS	45.94	121.99	2549	SE-on ridgetop	5N	7E	6

2012

Medford Fire Weather

Operating Plan

LOCATION

4003 Cirrus Drive
Medford, Oregon 97504

Medford Fire Weather is located at the Medford National Weather Service Office near the Rogue Valley Airport in Medford Oregon. The office maintains 2 advanced meteorological response units (AMRS) with 2 laptop computers with modems for on-site support of wildfires. Fire weather forecasts and other products are disseminated to state and federal agencies through AWIPS (NWS communications systems), WIMS and through our homepage.

The homepage address is: http://www.wrh.noaa.gov/mfr

HOURS

24 hours a day, year round
Meteorologists are on duty 24 hours a day, 7 days a week. Additional forecasters will be brought in to staff for additional projects, severe weather, etc. However, under the provisions of the National Fire Weather Agreement, special service provided by the Medford office will be done on a reimbursable basis.

PHONE NUMBERS

Primary Fire Weather.....541-776-4332
Secondary Fire Weather.....541-776-4326
Fax.....541-776-4333

STAFF

The Medford office is staffed with 13 full-time meteorologists. All forecasters participate in producing fire weather forecasts after each has completed the training, which includes correspondence course, computer-based Fire Weather Training Module, mesoscale analysis, climatological and terrain familiarization, and spot forecast training.

Management staff
- John Lovegrove, Meteorologist in Charge
- Michael Stavish, Science and Operations Officer
- Ryan Sandler, Warning and Coordination Meteorologist

Forecast Staff
- Frederic Bunnag, Senior Meteorologist / Assistant Fire Weather Program Leader (IMET)
- Sven Nelaimischkies, Senior Meteorologist (Webmaster)
- Ken Sargeant, Senior Meteorologist (IT)
- Jay Stockton, Senior Meteorologist

· Tom Wright, Senior Meteorologist

· Connie Clarstrom, Meteorologist
· Shad Keene, Meteorologist (IMET trainee)
· Brett Lutz, Meteorologist / Fire Weather Program Leader (IMET)
· Mike Petrucelli, Meteorologist
· Marc Spilde, Meteorologist
· Dan Weygand, Meteorologist

· Brian Nieuwenhuis, Meteorologist Intern
· Mike Ottenweller, Meteorologist Intern
· Megan Woodhead, Meteorologist Intern

FORECAST SERVICES

FIRE WEATHER AND LAND MANAGEMENT FORECASTS

The Land Management Forecast is issued during the off-season, usually from mid-October to around May. The forecast is available on the homepage once daily by 0700 local time. The frequency of the Land Management Forecast and the forecast elements may be increased as the fire season approaches. The Fire Weather Program manager will survey the user agencies throughout the off season to determine when extra forecasts are needed.

The Medford Weather Forecast Office also issues the grid-based Dispatch Area Forecast (ECCDA) twice a day at 0700 and 1500 local time. These forecasts are tailored to the operational area of each dispatch center and may also be accessed through our homepage. Currently, there are Dispatch Area Forecasts for Coos BLM/Coos Forest Protection Association (FPA), Douglas FPA, Umpqua NF, Oregon Department of Forestry (Medford and Grants Pass Districts), Medford Interagency Communications Center, Klamath Falls Interagency Fire Center and Lakeview Interagency Center.

During the fire season, the Fire Weather Forecasts will be issued twice daily at 0700 and 1500 PDT. NFDRS trend forecasts for specific meteorological parameters are issued with the afternoon Fire Weather Forecast. When necessary, trend forecasts may be updated on the morning Fire Weather forecast on the following day.

The Medford Forecast Office will activate the internet fire weather briefing around the middle of May (or as fuel conditions and fire management agency requests dictate) and continue through the end of the fire season. The briefing will be conducted using GoTo Meeting format with the duty fire weather forecaster narrating the briefing. Briefing time will be 0915 Pacifc Daylight Savings Time. Every fire and land agency is encouraged to dial into the conference call and ask questions. The graphics for the briefing can be accessed via the Fire Weather Section of the homepage under the Fire Weather Briefing

subsection. The dial-in phone number will be provided approximately one week before the briefing starts. Commencement time of this call will be coordinated with the fire agencies.

FIRE WEATHER WATCHES AND RED FLAG WARNINGS

Fire Weather Watches and Red Flag Warnings will be issued when the following weather criteria are expected, in conjunction with certain fuel situations.

Fuel Conditions:

Fuel conditions must be determined to be receptive/dry enough for lightning fire starts during the occurrence period of the lightning event such that they will be an initial attack problem for the fire agencies in the Fire Weather Zone or Zones in question. Fuel dryness/receptiveness can be determined by the following methods, in ranking level of importance:

i) The Center Managers of Interagency Communications Centers. Consult the Center Manager from each of the Interagency Communications Center in the affected area. He or she has been in contact with fire management officers in the area and knows if fuels are dry enough to be receptive to fire starts.

ii) High to Extreme Fire Danger in effect as determined by the local fire management agency.

iii) The Fuel Dryness Level of the Geographical Area Coordination Center (GACC) 7 Day Fire Potential chart should only be used as part of the decision making process. Dryness levels on the chart in the brown or yellow categories support issuance of a Watch or Warning. **If the fuel dryness level in the chart is green, the forecaster must determine if there will be an initial attack concern due to fuel dryness over all or part of the Fire Weather Zone or Zones. In rare cases, fuels may be or, may become, too wet for an imminent large fire concern for the GACC, but are still dry enough to be an initial attack concern.**

Weather Conditions:

A. Abundant Lightning:

Abundant lightning (scattered thunderstorm coverage or greater) in conjunction with sufficiently dry fuels (fuels remain dry or critical during and immediately after a lightning event). Thunderstorms must have forecasted areal coverage of at least 25%. Areal coverage can be based on fire weather zones or NDFD grid. Warnings may be issued for isolated events (<25% areal coverage) when little or no precipitation is expected to reach the ground.

The forecaster must ensure that fuels are critically dry and will remain so immediately after the lightning event. The GACC 7-Day Large Fire Potential Outlook can be used to determine if fuels remain in the dry to very dry category during the Red Flag event. Forecasters should have a high degree of confidence (~50% for watch, ~70% warning) that the Red Flag weather event will occur.

B. Strong Winds with low humidity generally associated with the marine push or a dry cold front.

Zones 615, 618.

- Min RH < 30% AND 10 minute sustained wind 15 mph or peak winds to 30 mph.
- Long Prairie RAWS and/or Flynn Prairie RAWS reporting above conditions for any 2 hours within the warning time frame.
- Other onsite observations from Lookouts

Zones 616, 617, 619, 620, 621, 622, 623.

- Min RH < 15% AND 10 minute sustained wind 10 mph or peak winds to 20 mph.

Zones 616 and 617.

- Emigrant RAWS and/or North Banks RAWS or Roseburg METAR (KRBG) reporting above conditions for any 2 hours within the warning time frame.
- Other onsite observations from Lookouts.
- These two zones are to be verified as a block.

Zone 619.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Bald Knob, Calvert Peak and Quail Prairie RAWS.

Zone 620.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Illinois Valley, Provolt, Onion and Merlin RAWS
- Sexton Summit METAR (KSXT) may also be used but winds must be adjusted to 10 minute average.

Zone 622.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Evans Valley, Star and Buckhorn RAWS
- Medford METAR (KMFR) may also be used but winds must be adjusted to 10 minute average.

Zones 621 and 623.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Zim and Parker Mountains RAWS in Oregon, and Slater Butte and Crazy Peak RAWS in northern California.
- These two zones are to be verified as a block.

Zone 624.

- Min RH < 15% AND 10 minute sustained wind 15 mph or peak winds to 25 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Calimus, Chiloquin, Coffee Pot, Gerber, Strawberry and Summit.
- Kingsley Field Metar (KLMT) may also be used but winds must be adjusted to 10 minute average.

Zone 625.

- Min RH < 10% AND 10 minute sustained wind 20 mph.
- Min RH < 15% AND 10 minute sustained wind 25 mph.
- Min RH < 20% AND 10 minute sustained wind 30 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Fish Fin Rim, Rock Creek, Catnip and Wagontire RAWS (Zone 636).
- Lakeview AWOS Metar (KLKV) may also be used but winds must be adjusted to 10 minute average.

C. Offshore East Wind Event resulting in strong winds and low relative humidity at night (2200 to 0800)

Zones 616, 617.

- RH Recovery only to 30% AND 10 minute sustained wind 10 mph.

- North Bank RAWS, Sugarloaf and Emigrant RAWS (Zone 608 in Portland WFO) reporting the above conditions for any 2 hours within the warning time frame.
- Onsite observations from Lookouts.

Zones 618.

- RH Recovery only to 25% AND 10 minute sustained wind 15 mph or peak winds to 25 mph for any 2 hours within the warning time frame.
- Red Mound RAWS and / or Flynn Prairie RAWS reporting any 2 hours within the warning time frame.

Zones 619 and 620.

- RH Recovery only to 30% AND 10 minute sustained wind 15 mph. or peak winds to 25 mph.

Zone 620.

- Onion RAWS or Sexton Summit METAR (KSXT) reporting above conditions for any 2 hours within the warning time frame.
- METAR wind at KSXT must be adjusted to a 10-minute average value.

Zone 619.

- Quail Prairie or Bald Knob RAWS reporting above conditions for any 2 hours within the warning time frame.
- In a situation when neither of the above RAWS reports the humidity and wind that met the criteria, the Red Flag Event is assumed to be occurring in zone 619 if zones on both sides of its border (618/620) are reporting Red Flag conditions.

Zones 621, 622, 623.

- RH Recovery only to 25% AND 10 minute sustained wind 10 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.
  Key stations: Evans Valley, Zim, Parker Mountain and Buckhorn.
- These three zones are to be verified as a block.

D. Very Dry and Unstable Airmass

- Haines Index forecast of 6 in conjunction with an ongoing fire.
- When fuels are extremely dry and Haines Index 6 is forecast, forecasters will coordinate with the fire agencies, whether fuel conditions warrant the issuance of the Red Flag Warning.

All attempts will be made to coordinate a Fire Weather Watch or Red Flag Warning with the affected agencies and neighboring fire weather offices before the issuance. In the event a Red Flag Warning must be issued before the coordination process can be completed, we will contact the affected agencies and neighboring forecast offices shortly afterward. Updates or cancellation of a Fire Weather Watch or Red Flag Warning will also be relayed by telephone to the dispatch office(s) affected by the watch/warning.

SPOT FORECASTS

Spot forecasts are available year-round to land management agencies upon requests for wildfires, prescribed fires, spray projects and other land management activities. Spot forecasts are available to state forestry agencies and local fire departments for wildfire suppression only. Information required by the forecasters is found on the Fire Weather Spot section of the Medford Weather Forecast Office homepage. Spot forecasts may also be requested by filling out pertinent information on the WS Form D-1, items 1-12 with the information faxed to the Medford office or relayed by phone.

We strongly encourage the fire agencies to call this office after submitting a spot request to ensure it was received properly. We will attempt to notify field personnel and/or the dispatch office whenever there is a significant change in the expected weather. However, spot forecasts will be updated only when new observations become available, and/or the update is requested by the users. The forecast will be valid for 12 hours after the proposed ignition time. Spot forecast request may also be submitted a day ahead of the planned burning. Spot forecasts for wildfire suppression take precedence over normal office routines, except a tornado warning.

FIRE WEATHER ZONES

AREA 1...COAST (Zones 615 and 618)

This area extends from the Pacific Ocean to the foothills of the Coast Range, which rises to a crest of 2500 feet, about 10 to 20 miles inland.

- Zone 615: South-Central Oregon coast. This zone extends from southern border of the Siuslaw National Forest in southern Lane county through Coos County to Humbug Mtn State Park in northern Curry County…and inland from the coast to about 10 to 20 miles inland. Elevations range from near sea level to 2500 feet.
- Zone 618: Southern Oregon coast. This zone extends from Humbug Mtn State Park along the coast to the California state line, and inland for 10 miles. Elevations range from near sea level to 2800 feet.

AREA 2...UMPQUA BASIN AND UMPQUA NF (Zones 616 and 617)

This is the area between the Coast Range of south-central Oregon in Coos and Douglas counties and the crest of the Cascade Mountain. The western portion of the area, mainly Zone 616 Umpqua Basin, extends from the Coast Range through the Umpqua valley to the foothills of the Cascade Mountain just east of Interstate 5, and varies in elevation with zone 616 ranging between 150 near Roseburg to almost 4000 feet in the Cascade foothills. The eastern portion, zone 617 which encompasses all of the Umpqua NF, rises from 1500 feet to 6000 feet with peaks reaching as high as 7400 feet in the Cascade Range.

AREA 3...SOUTHWEST INTERIOR INCLUDING THE CASCADE AND THE SISKIYOU MOUNTAINS (Zones 619-623)

This area has complex terrain. The western boundary begins with the Coast Range, and includes the Kalmiopsis Wilderness Area where elevations range from 3000 to 5000 feet. The northern boundary is the Umpqua Divide which separates the Rogue Valley from the Umpqua Valley. The area's eastern boundary includes the Cascade Mountains, where elevations can reach 6500 feet with a few peaks over 8000 feet high. Crater Lake is in the very northeast corner of this area. The southern part of the area is bounded by the Siskiyou Mountains, where elevations can reach 7000 feet. Mount Ashland is in the southwest corner of this area.

Zone 619: Southern Oregon coastal mountains. Elevations range from 200 feet in coastal valleys to 4600 feet.
Zone 620: Western Rogue Basin including the Illinois Valley. Elevations range from 650 feet in western Rogue Valley to 5700 feet in the Siskiyou Mountain in southern Josephine County.
Zone 621: Siskiyou Mountains, including the Siskiyou Fire Zone of the Rogue River-Siskiyou NF. Elevation ranges from 1800 feet to 7000 feet.

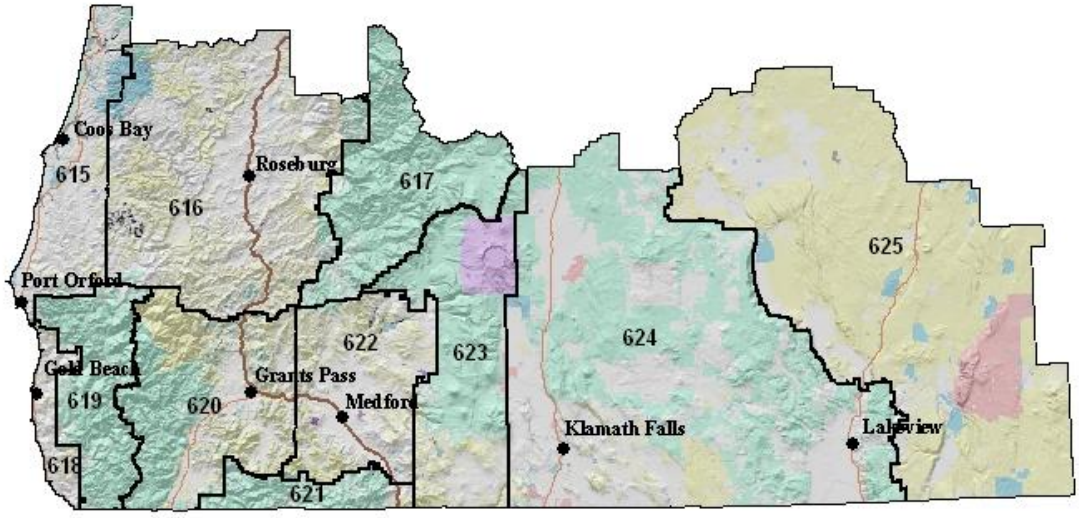
Zone 622: Eastern Rogue Basin. Elevations range from 1200 feet in the valley to 5200 feet in the Cascade and Siskiyou Mountains.
Zone 623: Southern Oregon Cascades including Crater Lake NP, the High Cascade Fire Zone of the Rogue River-Siskiyou NF and the Klamath District of the Fremont-Winema NF. Elevation ranges from 2400 feet to 8500 feet.

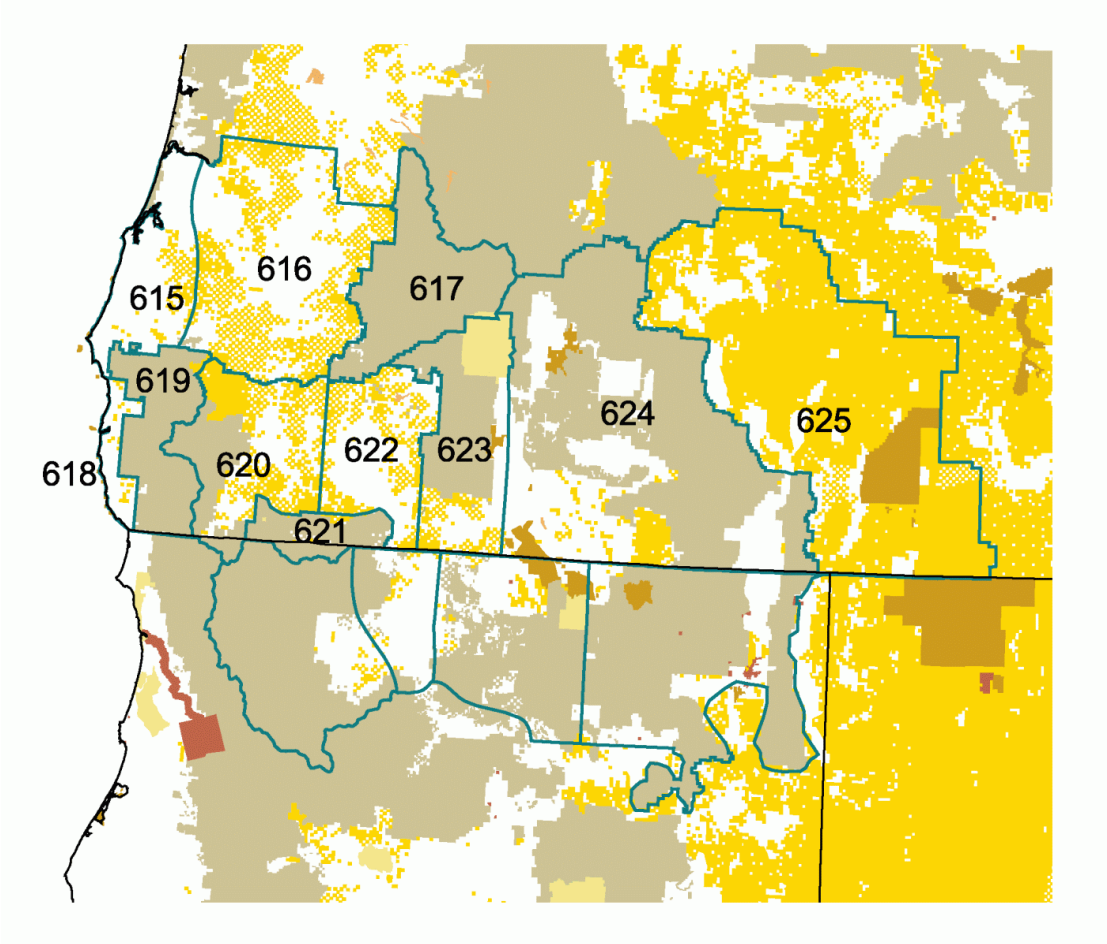
AREA 4...EAST OF THE CASCADE MOUNTAIN (Zones 624 and 625)

This area extends from the eastern foothills of the Cascade Mountains, eastward through the Klamath Basin and the Fremont-Winema NF, to the south central Oregon desert. The eastern part of the area closely follows the border between Lake County and Harney County, is representative of high plateaus with desert-like climate and includes the Warner Valley which is the northwestern rim of the Great Basin.

Zone 624: Klamath Basin and the Fremont-Winema National Forest. Elevation ranges from around 4000 feet in the Klamath Basin to the higher peaks of 8200 feet.

Zone 625: South Central Oregon Desert including the Klamath-Lake District of the BLM and the Lakeview Unit of the State Forestry. Elevation ranges from 4200 feet to 7600 feet.





2012 NWS Medford NFDRS Station Index

ZONE	NAME	Type	NUMBER	OWNER	LAT	LON	ELEV
615	Long Prairie	R	352819	CFPA	42.95	-124.22	1180
615	Seven Mile Creek	R	352820	ODF	43.21	-124.32	506
616	Mt. Yoncalla	R	353043	BLM	43.64	-123.33	1799
616	Signal Tree	R	352816	BLM	43.01	-123.78	3294
616	Charlotte Ridge	R	353046	ODF	43.67	-123.94	1220
616	Silver Butte	R	353041	BLM	42.86	-123.38	3973
616	Burnt Mountain	R	353044	BLM	43.22	-123.84	2240
616	Devil's Playground	R	353047	BLM	43.72	-123.63	1550
616	North Bank	R	353048	BLM	43.36	-123.19	1913
617	Sugarloaf	R	352546	USFS	43.23	-122.40	3500
617	Cinnamon	R	353031	USFS	43.26	-122.15	4636
617	Grandad	R	353036	USFS	43.41	-122.57	2900

617	Toketee	R	353038	USFS	43.23	-122.39	3360
617	Buckeye	R	353040	USFS	43.04	-122.64	2400
618	Flynn Prairie	R	352922	ODF	42.40	-124.39	1625
618	Red Mound	R	352920	BLM	42.12	-124.30	1753
619	Bald Knob	R	352813	USFS	42.40	-124.04	3630
619	Quail Prairie	R	352915	USFS	42.24	-124.04	3033
619	Agness	R	352916	USFS	42.33	-124.02	150
620	Calvert Peak	R	352919	BLM	42.78	-123.73	3822
620	Merlin	R	353122	BLM	42.49	-123.40	1040
620	Onion Mountain	R	353114	USFS	42.28	-123.38	4438
620	Provolt	R	353120	BLM	42.28	-123.23	1176
620	Illinois Valley Airport	R	353115	BLM	42.11	-123.67	1389
621	Squaw Peak	R	353213	USFS	42.07	-123.01	4964
622	Buckhorn	R	353230	BLM	42.12	-122.56	2900
622	Evans Creek	R	353228	BLM	42.63	-123.06	3200
623	Parker	R	353344	BLM	42.11	-122.28	5250
623	Mt. Stella	R	353209	USFS	42.93	-122.43	4715
623	Zim	R	353227	USFS	42.70	-122.39	4106
623	Seldom Creek	R	353339	USFS	42.41	-122.19	4875
624	Klamath NWR	R		BLM	42.95	-121.58	4531
624	Timothy	R	353337	USFS	43.20	-121.37	6020
624	Summit	R	353421	USFS	42.20	-120.25	6147
624	Chiloquin	R	353310	USFS	42.58	-121.89	4517
624	Gerber Reservoir	R	353328	BLM	42.20	-121.14	4940
624	Hoyt	R	353343	USFS	42.97	-121.42	5445
624	Silver Lake	R	353412	USFS	43.12	-121.06	4381
624	Coffee Pot	R	353422	BLM	42.53	-120.64	5250
624	Strawberry	R	353423	USFS	42.20	-120.85	5590
624	Summer Lake	R	353429	USFS	42.72	-120.75	5400
624	Calimus	R	353307	USFS	42.63	-121.56	6622
625	Catnip	R	260109	USFS	41.93	-119.50	5740
625	Rock Creek	R	353424	FWS	42.55	-119.66	5640
625	Fish Fin Rim	R	353516	BLM	42.47	-119.18	4900
625	Fort Rock	R	353406	BLM	43.43	-120.84	4430

2012

Spokane Fire Weather

Operating Plan

Spokane Fire Weather 2012

New for 2012:

Wording was added to explain the HYSPLIT trajectories model available within spot forecasts.

An experimental National fire weather webpage is available at http://www.srh.noaa.gov/ridge2/fire/ . This page layout allows quick and easy access to all regional and local fire weather information, including point digital forecasts and access to the Activity Planner/Weather Planning Tool. For more information on using this page, please go to http://radar.srh.noaa.gov/fire/description/description.php to learn more about the site capabilities.

LOCATION:

National Weather Service Office
2601 North Rambo Road
Spokane, WA 99224-9164.

HOURS:

Office hours at WFO Spokane for Fire Weather will be as follows: Daily 24 Hour forecast and briefing coverage.

The Fire Desk is staffed daily 0700-1500 Mid April - Early November

PHONE NUMBERS and E-Mail:

Fire Weather	(509) 244-5031
Public	(509) 244-6395
FAX	(509) 244-0554
john.livingston@noaa.gov	
ronald.miller@noaa.gov	
robert.tobin@noaa.gov	

STAFF:

Name	Position
John Livingston	Meteorologist in Charge
Ron Miller	Science and Operations Officer
Bob Tobin	Fire Weather Program Leader/IMET
Todd Carter	ITO/IMET
Jeremy Wolf	Forecaster/IMET

John Fox	Senior Forecaster/IMET Trainee
Paul Bos	Senior Forecaster
Matt Fugazzi	Senior Forecaster
Greg Koch	Senior Forecaster
Jeffrey Cote	Forecaster
Robin Fox	Forecaster
Laurie Nisbet	Forecaster
Rocco Pelatti	Forecaster
Ellie Kelch	Forecaster
Steve Bodnar	Forecaster
Steven Van Horn	Intern

COMMUNICATIONS:

All forecasts are available on WIMS, and on Spokane's Internet home page. Customers who do not have access to WIMS, or Internet can still have forecasts faxed to them.

Internet Address:

http://www.wrh.noaa.gov/firewx/?wfo=otx
http://www.wrh.noaa.gov/otx
http://www.weather.gov/spokane

WEATHER BRIEFINGS

Internet based weather briefings are available from the Spokane office as needed. During peak fire season, normally mid June-October briefings will be daily at 0900 PDT. During Land Management season briefings are available by customer request and are usually held twice per week for planning purposes. The phone number is 877-783-9070. The passcode is available by calling our office. Phone briefings are available 24 hours per day by calling 509-244-5031.

FORECAST DISTRICT:

The Spokane Fire Weather Office has weather forecast responsibility for a large portion of protected lands in eastern Washington. Exceptions are the Blue Mountains area, the Yakama Indian Nation lands, the DOE Hanford Site, and portions of the Southeast Department of Natural Resources (DNR) land. These protected lands are the forecast responsibility of the National Weather Service Office Pendleton Fire Weather program.

Spokane Fire Weather's area of responsibility for Eastern Washington is divided into six districts for fire weather forecasting. In addition, these forecast districts are further sub-divided into ten fire weather zones. See the map for general locations of districts and zones for eastern Washington. The weather zones are comprised of fire danger stations with similar weather and similar trends in weather changes.

WFO Spokane has forecast responsibility for the Central and Northern Idaho Panhandle. This district has one (1) zone (101) covering the Idaho Panhandle National Forests, Idaho State Lands, and Coeur d'Alene Indian Agency lands.

Agencies Served:

Land management agencies served by the Spokane Fire Weather Office include:

USFS....	Colville NF Wenatchee NF Okanagan NF Idaho Panhandle NF
BLM....	Spokane District Coeur D' Alene District
BIA....	Colville Indian Agency Spokane Indian Agency Coeur D' Alene Indian Agency
NWR...	Turnbull National Wildlife Refuge Columbia National Wildlife Refuge Kootenai National Wildlife Refuge Lake Pend Oreille Wildlife Refuge Sinhalekin Wildlife Refuge
Washington DNR...	Northeast Area Resource Protection Division Southeast Area Resource protection Division
Idaho...	Department of State Lands
Other Public Agencies...	Coulee Dam National Recreation Area Lake Chelan National Recreation Area

FORECAST SERVICES:

Fire Weather Watches and Red Flag Warnings

Red Flag criteria for eastern Washington and Northern Idaho are as follows:

- **"dry thunderstorm" Red Flag criteria is defined as follows:**

  Abundant lightning in conjunction with sufficiently dry fuels.

  "Abundant" and "Sufficient" are locally defined and verified by NWS offices and their fire agency customers using the following GACC AOP-wide guidelines:

  Abundant Lightning:
  1) Number of lightning strikes that meet climatologically significant criteria, or
  2) Areal coverage of lightning such as "Scattered" or ≥ 25%

  Sufficiently Dry Fuels:
  1) GACC dryness levels remaining out of the 'green' category on the day of and the day following a thunderstorm event, or
  2) ERC or BI values meeting climatologically significant percentiles or
  3) Land management declaration

- Sustained surface winds exceeding a 10 minute average of 15 mph combined with relative humidity less than:

  - 15% in the Columbia Basin (zone 673)
  - 25% in the mountainous areas
  - 20% in the lower valley zones

This is typically (but not always) associated with a dry cold front passage.

These conditions must be verified by at least 2 observation sites (RAWS, METAR, DOT, Agrimet etc) for 2 consecutive hours. **For Idaho Zone 101 the criteria will be at least 2 observations sites for any 3 hours in an 8 hour period.** When using observation sites other than RAWS sites wind speeds will be converted to 10 minute averages.

Special consideration will be given whenever very hot temperatures are combined with very low relative humidity.

- Haines Index of 6 when combined with low relative humidity, typically 15% or below.
-
- An unusually unstable atmosphere This would be associated with a strong thermal trough which typically forms along the east slopes of the Washington Cascades.

The issuance of Red Flag Warnings will take into account fuel conditions, and will be coordinated with land management agencies and other applicable fire weather offices. Typically when 1000 hour fuels are at or below 11%, 100 hour fuels are at or below 8-10% and Live Fuels at or below 120%. In 2012 the NWSFO Spokane will be utilizing the NWCC dryness levels as input into the decision making process for issuing fire weather watches and red flag warnings.

Red Flag Warning Verification Points: Any observation point in the Fire District can be used for verification. The following will be key stations for monitoring purposes.

Zone 673

- Douglas Raws, Escure Raws, Saddle Mountain Raws

Zone 676-677

- Camp Four Raws , Dry Creek Raws , Entiat Raws, Ellensburg Metar

Zone 686 Spokane County portion

- Wellpinit Raws , Midnight Mine Raws, TurnBull Wildlife Refuge Raws Spokane Metar, Deer park Metar

Zones 680, 682, 685

- NCSB , Raws, Leecher Raws , Signal Peak Raws, Peoh Point Raws

Zone 684

- Nespelem Raws , Kramer Raws , Douglas Ingram Raws , Oroville Raws…*****If Kramer Raws and Oroville Raws are used to meet red flag conditions at least one other RAWS in the fire zone will need to meet the criteria for at least one hour*****

Zones 686-687

- Kettle Falls Raws , Midnite Mine Raws , Gold Mountain Raws, Deer Mt. Raws

Zone 101

- Bonners Ferry Raws, Hoodoo Raws, Fish Hook Raws Magee Peak Raws , Line Creek Raws , Nuckols Raws

Priest Lake Raws , Saddle Pass Raws

*****For Idaho Zone 101 the criteria will be at least 2 observations sites for any 3 hours in an 8 hour period.*****

Spot Forecasts

Official spot forecasts will be prepared and disseminated 24 hours a day. All prescribed fire spot forecast requests **MUST BE** accompanied by a recent weather observation that is representative of the burn site. More observations from the burn area will generally result in better spot forecasts. Feedback is imperative to increase the accuracy of spot forecasts. **In addition valid times for spot forecasts will be twelve hours from forecast issuance**. If a fire has a longer duration, a new spot forecast should be requested. In addition if a spot is requested for the next day please provide afternoon observations and indicate in the remarks section if the spot is needed immediately for planning or for a specific time the next burn period.

Spot forecasts may be requested by a telephone call to the fire weather forecaster or through the spot forecast request web page available on the Portland fire weather web page at: **http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=otx**

"Spot forecasts are available year-round to all Federal, State and Local government entities for wildfire suppression, prescribed burns (for hazardous fuel reduction), search and rescue missions, HAZMAT incidents, or for any other land management activity that directly supports federal resources or the safety of civilians and forests. Spot forecasts cannot be provided to Local and State governments for non-fire/range management activities such as spray projects, road building, tree planting, recreational events, and prescribed burns (other than for hazardous fuel reduction) that do not have the potential to escape and threaten life and property."

HYSPLIT TRAJECTORIES

HYSPLIT Trajectories is a model which determines trajectories for parcels at a given height above ground level. An easy method has been developed to take advantage of the base information that is already input into the spot request form to generate automated HYSPLIT Trajectory forecasts. The HYSPLIT trajectories can be used for many purposes (i.e. HAZMAT, smoke, etc.).

The HYSPLIT output represents computer model forecasts without any human interaction. They do not take into account information on burn size or fuels, thus generate trajectory forecasts for 500, 1500, and 3000 meters AGL without regarding whether fire plume height will reach that altitude.

To utilize this feature, simply add the word Hysplit and your email address (and any

address will work) into the remarks section of a spot request:

example Hysplit very.windy@noaa.gov

You will receive an email that consists of a table of values, a GIF Hysplit trajectory map, and a KMZ trajectory map for loading into Google Earth.

Planning Forecasts

The issuance of planning forecasts are seasonal. Routine issuance of the morning and afternoon planning forecasts seven days a week normally begins in early spring. For 2012 it will be around Monday March 25th continuing through late October or early November. Specific start and stop dates are coordinated with customer agencies. Morning forecasts will be available at 07:00 a.m., while afternoon forecasts will be available by 3:00 p.m.

NFDRS Trend Forecasts

A numerical zone trend forecast is prepared and disseminated to WIMS by 1540 local time each afternoon from early to mid May through early October. The trend forecasts are used to compute the expected NFDRS indices valid for the following day. The number of NFDRS indices forecast by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500, a forecast will not be produced for the zone(s).

IMETS (Incident Meteorologists)

Spokane Fire Weather Office will have a minimum of two certified IMET'S on staff with at least one available at all times during the high summer fire season.

NON-FORECAST SERVICES:

There are several duties that fall into the non-forecast services including, but not limited to teaching assignments, customer meetings, consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

There is a need for advanced notice for teaching assignments, customer meetings and consultations. The NWS-NWSEO Collective Bargaining Agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become "fixed" without paying overtime.

All requests for teaching assignments, customers meetings and consultations will be honored provided they are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. NWS Spokane will make every effort to fulfill requests for teaching assignments, customer meetings and consultations that are scheduled with less than three weeks lead time, or conflict with other Fire Weather commitments.

The NWS Spokane Fire Weather Program Leader is Bob Tobin. High primary focus will be customer outreach, training, program development, IMET dispatches, and fire weather operational shifts.

GEOGRAPHICAL AREA DESCRIPTIONS

The National Weather Service Office in Spokane has fire weather forecast responsibility for protected lands in the northern and central part of eastern Washington and the northern and central Idaho Panhandle. Exceptions are the Blue Mountains area, the Yakama Indian Reservation, and portion of the Southeast Department of Natural Resources (DNR) protected lands. Forecasts for these areas are handled out of the National Weather Service office in Pendleton (see zone descriptions below).

WFO Spokane's eastern Washington fire weather area is divided into six districts. In addition, these forecast districts are further sub-divided into ten fire weather zones. See the map for general locations of districts and zones for eastern Washington. The fire weather zones are comprised of fire danger stations with similar weather and similar trends in weather changes.

South Central District:

This district consists of two zones. Zone 676 lower elevations and Zone 680 higher elevations. The south central district covers those areas of the southern Washington Cascades north of the Yakama Indian Reservation to Mission Ridge. The district boundary also runs west to east from the Cascade crest to Interstate 82. This includes the Naches and Cle Elum Ranger Districts of the Wenatchee National Forest. This district has pronounced climate differences, from the marine air influence near the Cascade crest, to the dry arid climate of the valleys. This district has a relatively low frequency of lightning, and averages about 7-10 storm-days per season from June through September.

Central District:

This district has two zones. Zone 677 lower elevations and Zone 682 are the two zones in this district. This district extends from Mission Ridge north to the Sawtooth Ridge, and from the Cascade crest east to the Columbia River. It includes the northern part of the Wenatchee NF. Lightning frequency averages around 10-15 storm-days per season. The summer climate is similar to the South Central District, but winds tend to be stronger and

more persistent, and day to day weather changes are more pronounced. This district contains some of the highest fire hazard areas in the Pacific Northwest.

Northern District:

This district has three zones. Zone 687 is the Okanogan Highland zone. Zone 684 lower elevations, mainly the Okanogan River Valley, and zone 685 higher elevations of the North Cascades. This district extends across the north part of eastern Washington from the Cascade crest to the Kettle River Ranger District on the east. It includes the Okanogan NF, the Republic Ranger district of the Colville NF, land under the protection of Northeast Department of Natural Resources, and the western and central parts of the Colville Indian Agency. The marine influence is minimal in this district compared to the south central and central districts due to its more continental location. Winds are generally lighter than central and south central districts. Lightning activity though is greater, averaging about 15 storm-days per season.

Northeast District:

Zone 686. The northeast district extends from the Kettle River to the Idaho border, and south to the vicinity of Spokane. It covers the remainder of the Colville NF and Colville Indian Agency, as well as lands under the jurisdiction of Northeast DNR and the Spokane Indian Agency. This district is normally a bit wetter than the other districts since it extends into the western foothills of the Rocky Mountains. The southern portion around Spokane is the drier, windier section of this district. Lightning frequency is the greatest of any of the districts averaging 15-20 storm-days per season.

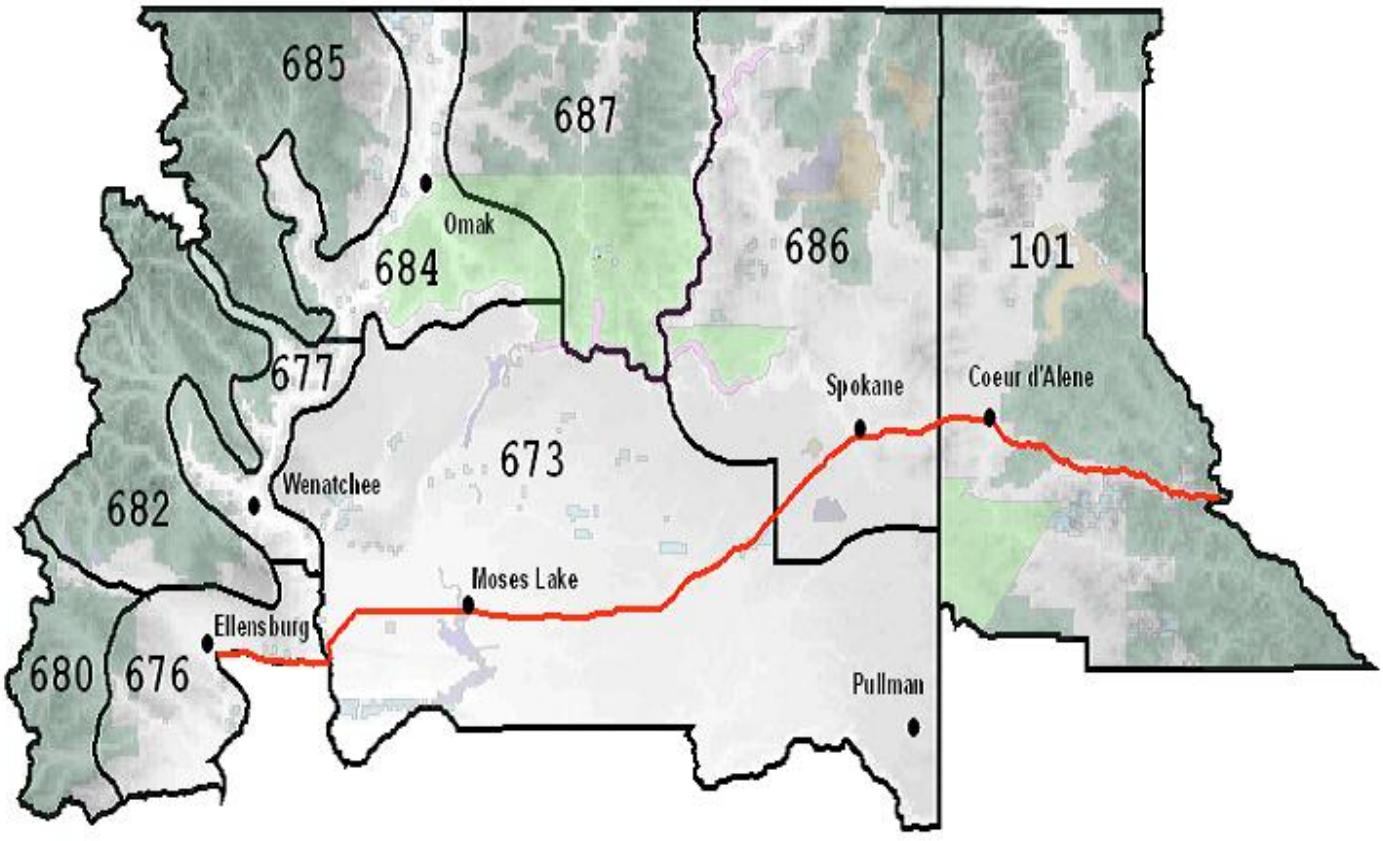
Northern Columbia Basin District:

Has one zone. Zone 673. Pendleton weather office has responsibility for a large portion of Washington State DNR Southeast Region lands, Yakama IA, and DOE Hanford. The southern boundary is I-90 for that part of the Yakima Firing Center in Kittitas County then follows county lines west to east across Grant, Adams, and Whitman Counties. The western part of the district boundary is the Columbia River at the Grant County line. The northern boundary is the same as previous years following the Columbia River to the eastern Ferry County then south across the northeast part of Lincoln County to Highway-2 near Davenport then east to the Spokane County line. Fuels in this district consist of mainly grass and sage. Zone 673 includes the Waterville Plateau which contains low ridges and coulees. Most of the district is at fairly low elevations between 900 and 3,000 ft...the exception being Badger Mountain near Waterville at 4,221 feet. Due to the relatively low elevations and locations, this is the warmest and driest district. Winds in some areas can be very strong. Lightning activity is the least of the districts, averaging about 6 storm-days per season.

Northern and Central Idaho Panhandle District:

This District is part of Region 1 and has one zone. Northern and Central Idaho Panhandle Zone 101 - Northern and Central Idaho Panhandle. This zone includes...Idaho Panhandle National Forests, Coeur d'Alene Indian Agency lands, and Idaho State protected lands in the following counties: Boundary, Bonner, Kootenai, Benewah, Shoshone, and the northern part of Latah county where a part of the St. Joe District resides. Zone 101 is broken into three (3) separate zones the Northern zone, Central zone and Southern zone. This area averages 12-15 thunderstorm days per season.

Spokane Fire Weather Forecast Zones in Washington



2012 NWS Spokane NFDRS Station Index

ZONE	NAME	Type	NUMBER	OWNER	LAT	LON	ELEV
673	Escure	R	453601	BLM	47.07	-117.98	1725
673	Columbia NWR	R	453102	FWS	46.87	-119.33	890
673	Spring Canyon	R	453002	NPS	47.93	-118.93	1340
673	Saddle Mtn	R	452701	FWS	46.69	-119.69	650
673	Douglas	R	452601	BLM	47.62	-119.90	2530
676	Ellensburg	M	452203	DNR	47.03	-120.54	1560
677	Dry Creek	R	452134	USFS	47.72	-120.53	3480
677	Camp 4	R	452132	USFS	48.02	-120.23	3773
677	Entiat	R	452136	USFS	47.67	-120.21	796
680	Peoh Point	R	452206	DNR	47.15	-120.95	4020
680	Sawmill Flats	R	452221	USFS	46.98	-121.08	3500
680	Sedge Ridge	R	452306	DNR	46.58	-120.90	4300
682	Viewpoint	R	452128	USFS	47.85	-120.87	3760
682	Swauk	R	452219	USFS	47.25	-120.67	3773
682	Alpine Lookout	M	452127	USFS	47.80	-120.85	6237
684	NCSB	R	452030	USFS	48.43	-120.14	1650
684	Oroville	R	452039	BLM	48.96	-119.49	1360
684	Nespelem	R	452009	BIA	48.21	-119.02	1782
684	Douglas Ingram Rdg	R	452035	USFS	48.12	-120.10	3460
684	Kramer	R	452040	BIA	48.27	-119.52	2720
685	83Monument	R	452036	USFS	49.00	-120.65	6500
685	Leecher	R	452020	USFS	48.25	-120.00	5019
685	First Butte	R	452006	USFS	48.62	-120.11	5500
685	Aeneas	R	452001	DNR	47.70	-119.60	5167
686	Turnbull Wildlife	R	453506	FWS	47.41	-117.53	2250
686	Midnite Mine	R	452913	BLM	47.94	-118.09	2693
686	Pal Moore Orchard	R	452915	USFS	48.39	-117.43	3120
686	Kettle Falls	R	452916	NPS	48.61	-118.12	1310
686	Tacoma Creek	R	453413	USFS	48.49	-117.43	3300
686	Little Pend Oreille	R	453416	FWS	48.27	-117.43	2020
686	Deer Mountain	R	453412	USFS	48.80	-117.45	3300
686	Wellpinit	R	452918	BIA	47.88	-118.10	2240
686	Spokane Airport	M	453505	NWS	47.60	-117.50	2365

687	Peony	R	452038	USFS	48.59	-119.21	3600
687	Brown Mountain Ochd	R	452514	USFS	48.54	-118.69	3210
687	Owl Mountain	R	452513	USFS	48.94	-118.30	4400
687	Lane Creek	R	452511	USFS	48.61	-118.28	4500
687	Gold Mountain	R	452510	BIA	48.18	-118.49	4636
687	Iron Mountain	R	452512	USFS	48.56	-118.62	4325
687	Lost Lake	R	452029	USFS	48.87	-119.06	3760
687	Peony	R	452038	USFS	48.59	-119.21	3600
101	Bonners Ferry	R	100101	USFS	48.72	-116.35	2310
101	Magee Peak	R	100425	USFS	47.89	-116.31	4856
101	Fish Hook	R	100421	USFS	47.86	-115.91	4700
101	Hoodoo	R	100208	USFS	48.05	-116.84	2270
101	Lines Creek	R	100424	USFS	48.15	-116.29	5120
101	Nuckols	R	100423	USFS	47.54	-115.97	4000
101	Priest Lake	R	100204	USFS	48.60	-116.96	2600
101	Saddle Pass	R	100107	USFS	48.98	-116.79	5120

2012

Pendleton Fire Weather

Operating Plan

National Weather Service Pendleton
Fire Weather
Operating Plan 2012

LOCATION:

National Weather Service Office
2001 NW 56th Dr.
Pendleton, OR 97801
Office website: www.weather.gov/pendleton

OFFICE PHONE NUMBERS (all available 24-hours):

Fire Weather Desk	(541) 276-8134
General	(541) 276-4493
Fax	(541) 276-8253

CHANGES FOR 2012:

- Changed Program Leader from Jon Bonk to Rachel Trimarco along with other staff changes.

FORECAST DISTRICT:

The Pendleton Fire Weather District currently covers the east slopes of the Cascade mountain range from the Deschutes National Forest north to the alpine reaches of the Yakama Indian Reservation, Central Oregon, the northeast quadrant of Oregon (including Wallowa county, Baker county, and Harney county north of highway 20), and Southeast Washington (Benton, Franklin, Klickitat, Yakima, Walla Walla, Columbia, Garfield, and Asotin counties).

OFFICE HOURS:

The Pendleton Fire Weather Program is committed to a program with staff trained to respond to incident needs 24 hours per day, 7 days a week. Fire Weather shifts are currently scheduled during the following times with end dates remaining flexible to meet conditions and the needs of the community:

Spring / Fall Burning Seasons:7:00 AM - 4:00 PM Monday - Friday

March 26th – May 18th and October 8th – November 2nd

Summer Peak Wildfire Season:7:00 AM - 4:00 PM7 days a week

May 20th – October 6th

STAFF:

Name	Position	email Address
Mike Vescio	Meteorologist-in-Charge	michael.vescio@noaa.gov
Dennis Hull	Warning Coordination Meteorologist	dennis.hull@noaa.gov
Mary Wister	Science and Operation Officer	mary.johnson@noaa.gov
Rachel Trimarco	Fire Weather Program Leader	rachel.trimarco@noaa.gov

All forecasters are certified to issue spot forecasts and will remain annually proficient. Rachel Trimarco will provide the majority of Fire Weather Planning forecasts through fire season, with remaining shifts filled by the following certified fire weather forecasters.

Name	Position
Rachel Trimarco	Fire Weather Program Leader / Journeyman Forecaster / IMET trainee
Joe Solomon	Senior Forecaster / IMET
Mary Wister	Science and Operations Officer
Gordon Hepburn	Senior Forecaster
Diann Coonfield	Journeyman Forecaster
George Perry	Journeyman Forecaster
Robert Cramp	Journeyman Forecaster
Diana Hayden	Journeyman Forecaster

WEATHER BRIEFINGS:

Internet based weather briefings will be held at 0930 PDT beginning in May. The briefing page is located at: http://www.wrh.noaa.gov/pdt/forecast/fwxBriefing.php . During spring and fall burning seasons, briefings will be held Monday, Wednesday, and Friday. During peak fire season, normally mid June-September, briefings will be held daily. Please contact Rachel Trimarco at (541) 276-8134 for information on how to join the briefing.

Phone briefings are always available 24 hours per day, year round, by calling the fire weather desk.

FORECAST SERVICES:

Forecast Grids/Graphics:

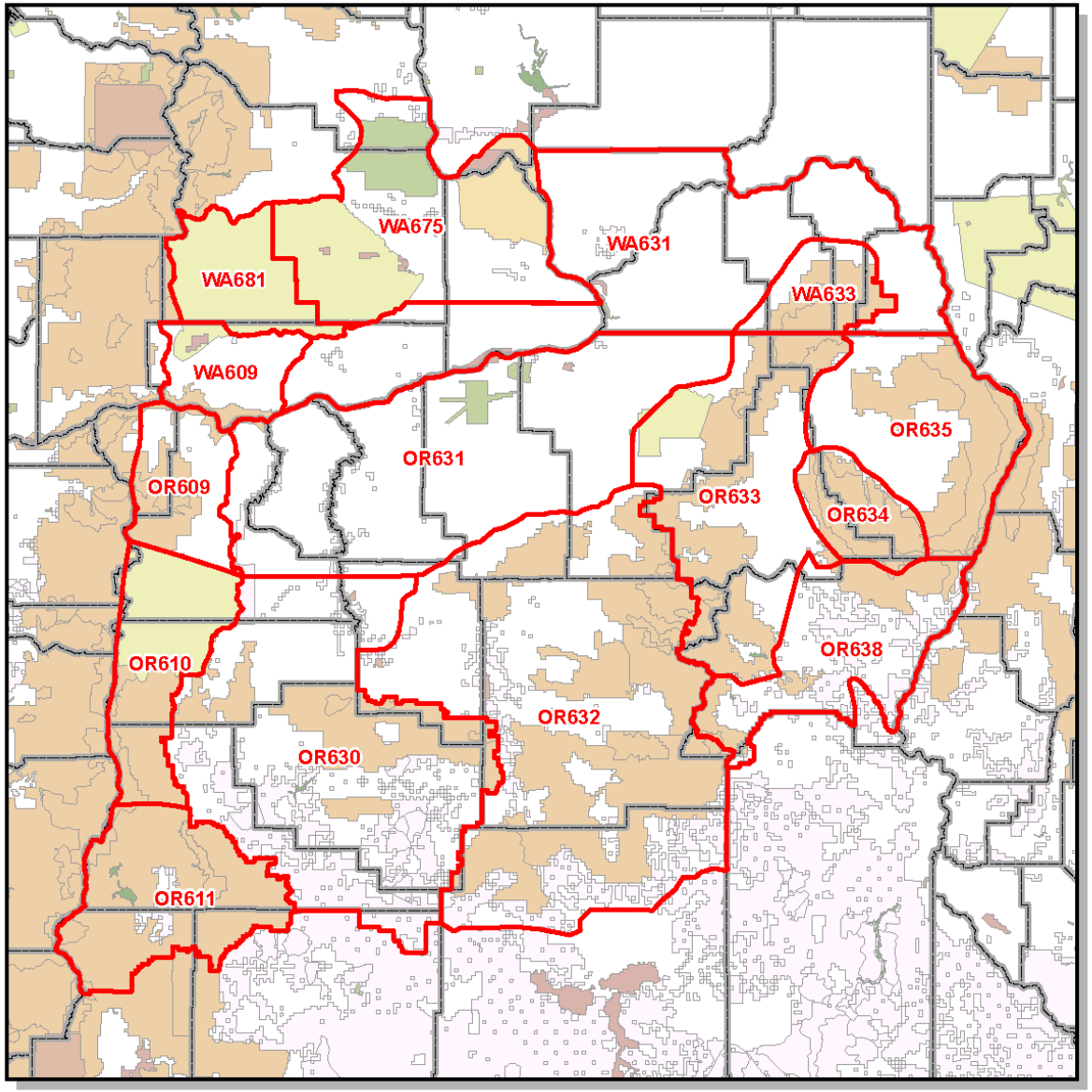
In addition to the core fire weather elements and forecast grids, this office produces a Ventilation Index grid and graphic. These graphics are found at: http://www.wrh.noaa.gov/pdt/forecast/fwxGraphicalVentilation.php?wfo=pdt . Additionally, several Fire Weather Threat Index grids and graphics attempt to graphically illustrate the potential for Red Flag criteria being met under the Wind/RH and Haines/RH categories. These graphics are found on the briefing web page listed above.

Fire Weather Planning Forecasts:
Fire Weather Planning forecasts are routinely issued when the Fire Weather desk is staffed. They are available twice a day Monday through Friday no later than 0900 PDT and 1530 PDT during the spring/fall burning seasons and 7 days a week during peak fire season.

The Pendleton Fire Weather forecast area of responsibility is sectioned by Fire Weather Zones. OR609/WA609, OR631/WA631, and OR633/WA633 will typically be combined into single zone forecasts unless conditions warrant separating them. This usually results in 12 separate zone forecasts. These zones are based on terrain, elevation, weather characteristics, and political boundaries. Please see the district map on the following page for specific outlines of the Fire Weather Zones.

The zone names are as follows:

OR609 – East slopes of the northern Oregon Cascades
WA609 – East slopes of the southern Washington Cascades
OR610 – East slopes of the central Oregon Cascades
OR611 – Deschutes National Forest
OR630 – Central Mountains of Oregon
OR631 – Lower Columbia Basin of Oregon
WA631 – Lower Columbia Basin of Washington
OR632 – Southern Blue and Strawberry mountains
OR633 – Northern Blue mountains of Oregon and Washington
WA633 – Blue Mountains of Washington
OR634 – Eagle Caps
OR635 – Wallowa County
OR638 – Baker Valley
WA675 – Eastern Washington southern Columbia Basin
WA681 – Yakama Alpine



Pendleton Fire Weather Zones

Legend

- Fire Zones
- Counties

Federal Lands

- BIA
- BLM
- BOR
- DOD
- FS
- FWS
- NPS
- OTHER
- States

Fire Weather Watch and Red Flag Warnings:
Specific Red Flag criteria differ for each situation and district. The following are criteria that would warrant the issuance of a Fire Weather Watch or Red Flag Warning in the Pendleton Fire Weather area of responsibility:

*Underlying conditions***:**
The three steps below are forecaster guidelines for determining the need for a watch or warning.

1. Refer to GACC "Dryness Level" for initial fuel moisture evaluation. Levels should be at a (Yellow) or higher (Brown).
2. The forecaster is required to check with fire/land management agencies to ensure fuels are dry and considered critical enough to carry or spread fire.
3. Forecasters should have a high degree of confidence (60% for watch, 80% warning) that the Red Flag weather event will occur.

Red Flag Warning Criteria:
Any one, or a combination, of the following events combined with very dry fuels is criteria for the issuance of a Fire Weather Watch or a Red Flag Warning:

- **LIGHTNING:** Abundant lightning (scattered thunderstorm coverage or greater) in conjunction with sufficiently dry fuels (fuels remain dry or critical during and after a lightning event). Warnings are not typically issued for isolated coverage events.

- **DRY & UNSTABLE AIRMASS:** High elevation Haines Index of 6 in combination with RH of 15% or less over half or more of a zone.

- **WIND & LOW HUMIDITY:** Significant sustained winds combined with low relative humidity (this includes significant dry cold frontal passages) that meets the criteria as defined below at **TWO** or more RAWS locations simultaneously for two consecutive hours. Other supplementary locations (converted to RAWS 20 foot/10 minute average wind standards) may also be used if they are deemed representative of burning conditions at the time.

  Zones OR/WA609: Relative Humidity at 20% or less **AND** sustained wind speed 10 mph or greater. Greyback RAWS (located in zone WA681) will be included for verification purposes in this zone as well.

  Zone OR610: Relative Humidity at 15% or less **AND** sustained wind speed 10 mph or greater. Haystack RAWS (located in zone OR630) will be included for verification purposes in this zone as well.

  Zone OR611: Relative Humidity at 15% or less **AND** sustained wind speed 10 mph or greater. Timothy RAWS (located in zone OR624) will be included for verification purposes in this zone as well.

Zones OR630, OR/WA631, OR632, OR/WA633, OR634, OR635, OR638, WA675, & WA681: Refer to the following tables:

Columbia Basin - Zones OR/WA631 and WA675

		Sustained Wind (MPH) Over Widespread Area				
		10	15	20	25	30+
RH	35%					
	30%					W
	25%				W	W
	20%			W	W	W
	15%		W	W	W	W
	10%		W	W	W	W

The Central and Northeast Oregon Mountains / Yakama Alpine - Zones OR630, OR632, OR/WA633, OR634, OR635, OR638, and WA681

		Sustained Wind (MPH) Over Widespread Area				
		10	15	20	25	30+
RH	30%					
	25%					W
	20%			W	W	W
	15%			W	W	W
	10%		W	W	W	W

Central Oregon Rangelands - Zone OR630 South of the Maury Mountains

		Sustained Wind (MPH) Over Widespread Area			
		15	20	25	30+
RH	25%				
	20%		W	W	W
	15%		W	W	W
	10%	W	W	W	W

Red Flag Warning Dissemination:
A Red Flag Warning dissemination call list has been established in order to rapidly disseminate Fire Weather Watches, Red Flag Warnings, or other rapidly changing weather conditions that do not necessarily meet Red Flag criteria, but will affect fire control or pose a safety threat. **NWS Pendleton will contact the affected dispatch centers who will then contact other affected land management agencies in those zones per the following Table**:

Red Flag Warning dissemination call list to Dispatch Centers

NWS PDT

ORBMC		ORCOC	ORJDC	WACCC	WACWC	WAHNC	ORWSC	WAYAC
UMF	WWF	DEF	95S JDY	MHF	SES	HFD	WSA	YAA
97S PDT	97S LGD	OCH	BFZ→BUD	CGF		MCR		
UMA BIA	97S BKE	95S ODF	JDP					
CTUIR	97S WAL	99S WRP	MAF					
WMP	VAD BLM	PRD BLM						
		ODF TDL						

Zone WA = Washington OR = Oregon	ORBMC 541- 963-7171	ORCOC 541- 416-6800	ORJDC 541- 575-1321	WACCC 360- 891-5140	WACWC 509- 884-3473	WAHNC 509- 373-3221	ORWSC 541- 553-2413	WAYAC 509- 865-6653
WA 609				▲	▲	▲		
OR 609		▲		▲				
610		▲					▲	
611		▲						
630		▲						
WA 631	▲				▲	▲		
OR 631	▲	▲				▲		
632	▲	▲	▲					
WA & OR 633	▲							
634 & 635	▲							
638	▲							
675					▲	▲		▲
681								▲

▲ Indicates to call Dispatch Center(s) based on which zone(s) warning(s) issued for. updated 03/2011

BMIDC = Blue Mountain Interagency Dispatch
WACWC = Central Washington Dispatch
WACCC = Columbia Cascade Dispatch
ORJDC = John Day Dispatch
WAHNC = Hanford Fire
ORWSC = Warm Springs BIA Dispatch
ORCOC = Central Oregon Dispatch
WAYAC = Yakama BIA Dispatch

NFDRS Forecasts:
National Weather Service Pendleton produces individual NFDRS station forecasts using specific 1300 LST values as opposed to a zone wide trend adjustment. A listing of stations handled by the Pendleton office is on the following page. If observations are not entered into WIMS by 1500, a forecast for the following day will not be produced for those stations. Forecasters may choose to, at their discretion, not produce a NFDRS forecast for a station containing questionable observation data.

NON-FORECAST SERVICES:

All requests for teaching assignments, customer meetings, and customer consultations will be honored provided they are scheduled more than three weeks ahead of time. Every effort will be made to honor requests made within a period of less than three weeks depending on schedule availability. Please contact Rachel Trimarco at NWS Pendleton (541) 276-8134, or by e-mail (rachel.trimarco@noaa.gov) to schedule these services.

Pendleton NFDRS Fire Weather Station Index

Zone	Name	NFDRS	Type	Agency	Lat	Long	Elev	Slope/Aspect
WA609	Goldendale	452408	RAWS	DNR	45.8672	120.7230	1650	Flat knob-S
WA609	The Dalles	452406	Metar	FAA	45.6190	121.1657	210	W-E valley
OR609	Middle Mtn	350812	RAWS	ODF	45.5794	121.5970	2500	N-S Ridge
OR609	Pollywog	350912	RAWS	USFS	45.4586	121.4464	3320	Lwr slope-S
OR609	Wamic Mill	350913	RAWS	USFS	45.2333	121.4500	3320	Upr slope-S
OR609	Wasco Butte	350919	RAWS	ODF	45.6167	121.3353	2345	Butte top
OR610	Sidwalter	350909	Manual	BIA	44.925	121.5347	3600	Butte top-NW
OR610	Mt Wilson	350916	RAWS	BIA	45.0397	121.6736	3780	Midslope-SW
OR610	Mutton Mtn	350917	RAWS	BIA	44.9255	121.1978	4100	S-N Ridge
OR610	He He 1	350920	RAWS	BIA	44.9559	121.4992	2689	Flat
OR610	Shitike Butte	352102	Manual	BIA	44.7449	121.6106	5000	Butte top
OR610	Eagle Butte	352106	Manual	BIA	44.8399	121.2338	3100	Butte top
OR610	Warm Spring	352108	RAWS	BIA	44.7750	121.2541	1632	Valley
OR610	Metolius Arm	352110	RAWS	BIA	44.6275	121.6147	3440	Butte-SW
OR610	Colgate	352620	RAWS	USFS	44.3156	121.6022	3280	Flat
OR611	Round Mtn	352605	RAWS	USFS	43.7575	121.7102	5900	Butte top
OR611	Lava Butte	352618	RAWS	USFS	43.9253	121.3429	4655	Butte top-S
OR611	Tepee Draw	352622	RAWS	USFS	43.8322	121.0842	4740	Lwr slope-E
OR611	Black Rock	353342	RAWS	USFS	43.527	121.8090	4880	Lwr slope-S
OR611	Cabin Lake	353402	RAWS	USFS	43.4956	121.0597	4545	Flat
OR611	Tumalo Ridge	352621	RAWS	ODF	44.0493	121.4001	4000	Ridge-NW
OR630	Haystack	352107	RAWS	USFS	44.4494	121.1297	3240	Flat
OR630	Brown's Well	353428	RAWS	BLM	43.5628	121.2360	4500	Flat knob-SW
OR630	Cold Springs	352701	RAWS	USFS	44.3550	120.1335	4695	Flat
OR630	Salt Creek	352712	RAWS	BLM	44.0467	120.6694	4200	Flat
OR630	Badger Creek	352711	RAWS	USFS	44.0311	120.4083	5680	Midslope-flat
OR630	Slide Mountain	352207	RAWS	USFS	44.4622	120.2945	5700	Upr slope-NE
OR630	Brer Rabbit	352208	RAWS	USFS	44.333	119.770	5900	Valley-S
OR630	Board Hollow	350915	RAWS	ODF	44.6038	120.6847	4200	Ridge-flat
WA631	Juniper Dunes	453201	RAWS	BLM	46.3575	118.8683	950	Flat
WA631	Walla Walla AP	453302	Metar	FAA	46.0945	118.2858	1166	Flat
OR631	Patjens	351001	RAWS	BLM	45.3219	120.9292	2230	Ridge-SW
OR631	North Pole Rdg	350915	RAWS	BLM	45.0329	120.5357	3500	Ridge-W
OR631	Umatilla NWR	351316	RAWS	USFWL	45.9180	119.5675	270	Flat
OR631	Pendleton AP	351307	Metar	FAA	45.6975	118.8344	1482	Ridge-flat

OR632	Case	352329	RAWS	USFS	44.9711	118.9297	3800	Ridge-flat
OR632	Tupper	351202	RAWS	USFS	45.0667	119.4925	4200	Lwr slope-S
OR632	Board Creek	352330	RAWS	BLM	44.5930	119.2770	5000	Ridge
OR632	Keeney 2	352332	RAWS	USFS	44.6661	118.9219	5120	Ridge
OR632	Crow Flat	353515	RAWS	USFS	43.8413	118.9521	5130	Valley-S
OR632	Allison	353501	RAWS	USFS	43.9214	119.5964	5320	Valley-S
OR632	Fall Mountain	353524	RAWS	USFS	44.2970	119.0370	5949	SW-NE Ridge
OR632	Antelope	353524	RAWS	BLM	44.0384	118.4163	6460	N-S Ridge
OR632	Crane Prairie	352305	RAWS	USFS	44.1601	118.4704	5373	Valley-S
WA633	Alder Ridge	453803	RAWS	USFS	46.2685	117.4983	4550	Ridge-S
OR633	Eden	351518	RAWS	USFS	45.8763	117.6160	3500	Upr slope-S
OR633	J Ridge	351414	RAWS	USFS	45.1135	118.4051	5180	Upr slope-Se
OR633	Black Mtn Rdg	351319	RAWS	USFS	45.5738	118.2385	4965	Ridge-Sw
OR633	LaGrande 1	351417	RAWS	ODF	45.5508	118.0133	3079	Lwr slope-E
OR634	Point Prom 2	351419	RAWS	USFS	45.3547	117.7044	6600	N-S Ridge
OR634	Minam	351416	RAWS	USFS	45.3539	117.6328	3590	SE-NW Vly
OR635	Roberts Butte	351520	RAWS	USFS	45.6811	117.2067	4300	N-S Ridge
OR635	Harl Butte	351502	RAWS	USFS	45.3282	116.8774	6071	Butte top-S
OR638	Elk Creek	352126	RAWS	USFS	44.7577	117.9711	6576	Upr Slope
OR638	Blue Canyon	352416	RAWS	BLM	44.6700	117.9336	4200	Lwr slope SW
OR638	Sparta Butte	352418	RAWS	USFS	44.8850	117.3383	4300	Midslope-SW
OR638	Flagstaff Hill	352123	RAWS	BLM	44.8141	117.7289	3945	Hill Top-W
OR638	Morgan Mtn	352420	RAWS	BLM	44.5014	117.2983	4200	N-S Ridge
OR638	Yellowpine	352124	RAWS	USFS	44.5263	118.3230	4200	Lwr slope-E
WA675	Saddle Mtn	452701	RAWS	USFWL	46.6944	119.6936	650	Flat
WA675	High Bridge	452318	RAWS	BIA	46.0811	120.5440	2106	Midslope-N
WA681	Signal Peak	452307	RAWS	BIA	46.2269	121.1375	5052	Ridge-S
WA681	Mill Creek	452304	RAWS	BIA	46.2625	120.8622	2928	Midslope-flat
WA681	Teepee Creek	452317	RAWS	BIA	46.1642	121.0331	2980	Midslope-flat
WA681	Grayback	452404	RAWS	DNR	45.9908	121.0838	3766	Ridge

2012

Boise Fire Weather Operating Plan

Fire Weather Zones OR636 and OR637

NATIONAL WEATHER SERVICE BOISE

WHATS NEW: The hours that the fire desk will be staffed has been moved ahead by an hour and will now be from 0730 to 1530 with the morning forecast now being issued NLT 0830 mountain time.

HOURS OF OPERATION

Once a day pre-fire season product issuance will begin Monday, April 16th, but is dependent on ongoing weather and fuel conditions. These forecasts will be issued Monday through Friday by 1530 MDT/ 1430 PDT.

Starting dates for the full compliment of fire weather products (including NFDRS forecasts and twice-daily zone forecasts) will depend on variables such as fuel dryness and customer needs. Typically, this occurs by mid to late May.

Staff meteorologists are available any time, 24 hours a day, 7 days a week. The fire weather desk is staffed from 730 am MT to 330 pm MT.

STAFF AND CONTACT INFORMATION –

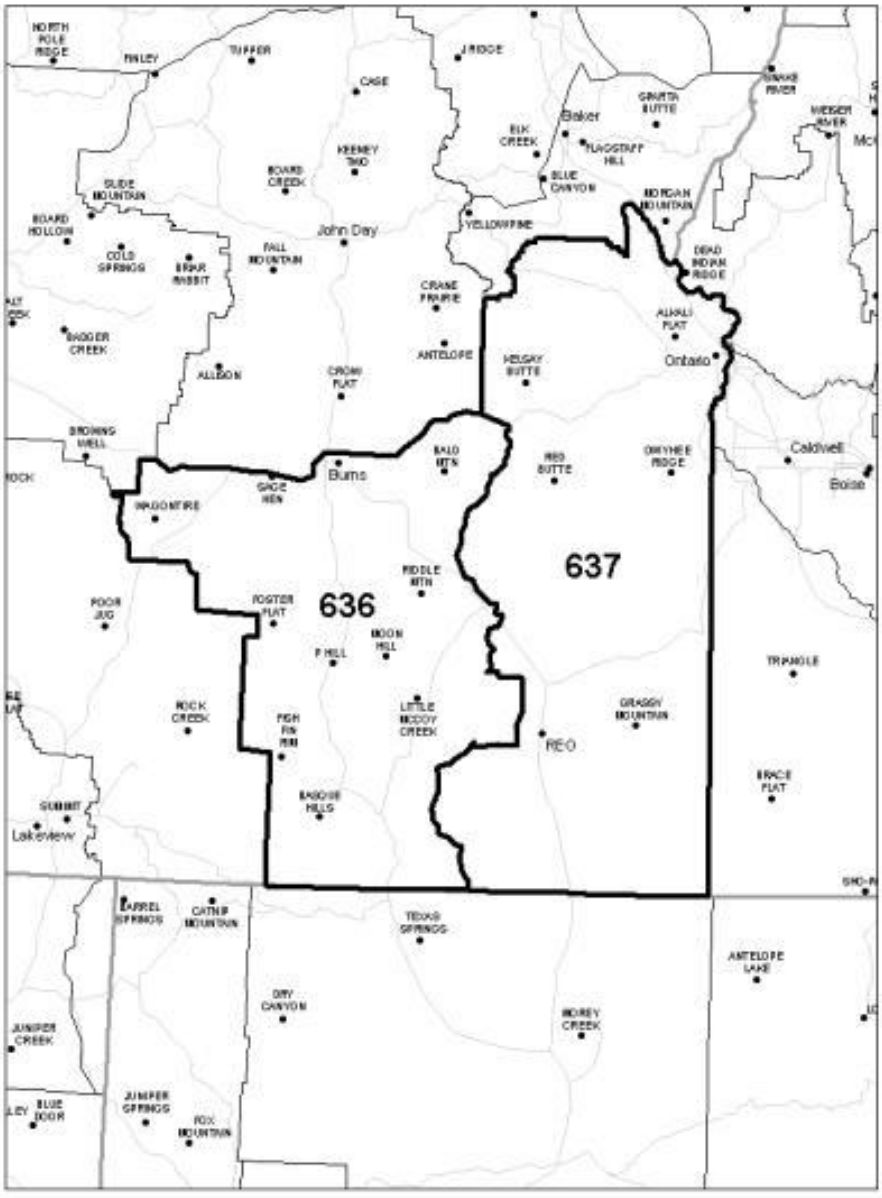
Boise Weather Forecast Office
NIFC – National Weather Service
3833 S. Development Ave., Bldg 3807
Boise, ID 83705-5354

Phone: (208) 334-9060 / Fax (208) 334-1662/1660
Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=boi

Name	Position	E-Mail
Chuck Redman	Co-Program Leader/IMET	Chuck.Redman@noaa.gov
Coleen Decker	Co- Program Leader/IMET	Coleen.Decker@noaa.gov
Josh Smith	Forecaster / IMET- Trainee	Joshua.Smith @noaa.gov
Robert Diaz	Meteorologist-in-Charge	Robert.Diaz@noaa.gov

FIRE WEATHER SERVICES

Description of the Boise Fire Weather District within the PNWCC



Zone 636 - Burns BLM south of Highway 20
Zone 637 - Vale BLM

BASIC METEOROLOGICAL SERVICES

Schedule of Products

Product:	Issuance time: (MDT) / (PDT)
Morning planning forecast	0830 / 0730
Internet briefing	0930 / 0830
Afternoon planning forecast	1530 / 1430
NFDRS point forecast	1530 / 1430
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

RED FLAG EVENTS: High to extreme fire danger and dry fuels (dryness level **brown** as defined by the Geographic Coordination Center 7 day Fire Potential Outlook and/or user input) in combination with the following weather conditions:

- Abundant lightning in conjunction with sufficiently dry fuels. Aerial coverage must be at least scattered (≥25%) in nature.

- Strong winds and low humidity: See matrix below for sustained criteria. In addition to sustained strong winds from the matrix, wind gusts of at least 35 mph combined with relative humidity 10% or less is considered Red Flag Criteria. Red Flag Criteria are considered to be met if conditions are observed at any 3 RAWS stations within a combined area of Fire Weather Zone 636 and 637 for at least 3 hours (not necessarily consecutive). Alternatively, if a RFW is issued separately for Fire Weather Zones 636 and 637, it is considered to verify if conditions are met at 3 RAWS stations in Zone 636 or 2 RAWS stations in Zone 637.

SUSTAINED 20 FT WIND (10-MINUTE AVERAGE in MPH)

	10 mph	15 mph	20 mph	25 mph	30 mph
20%					W
15%				W	W
10%			W	W	W

Interagency Coordination: Before the issuance of a Fire Weather Watch or Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) affected by the watch/warning.

Verification of Red Flag Warnings and Events: NWS Boise will archive all Fire Weather Watches and Red Flag Warnings. Red Flag events will be manually databased and compared to the issued watches and warnings. Statistically derived values of Probability of Detection (POD), False Alarm Rate (FAR), and Critical Success Index CSI) will be calculated as soon as possible. These scores will be available to the Boise MIC, NWS Western Region Headquarters, and local customers including the PNWCC meteorologists during post-season meetings from November through January.

SPOT FORECASTS: http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=boi

Please reference LAT/LON when requesting spot forecasts.
Follow-up phone calls are always encouraged and feedback is extremely useful.

WEATHER BRIEFING: During this fire season, a daily briefing will be offered each day at 0930 MDT for all agencies via a Go To Meeting. During pre-fire season and low fire activity periods if there is not sufficient interest in a daily briefing, it will be held on Mondays and Thursdays at 0930 MDT. This briefing will include a general discussion of weather conditions and forecasts for the current day, as well a brief discussion of the extended period. Model data, satellite loops, and other items of interest will be addressed for the forecast period. The briefing will usually be about 10 minutes but may be longer during active fire periods.

NFDRS Sites

636	STN #	NAME	COUNTY	LAT	LON	ELEV	ASPECT
	353522	Bald Mtn	Harney	43.33	-118.24	5480	S-Mtn Top
	353520	Basque Hills	Harney	42.15	-118.59	5080	SW-Ridgeline
	353527	Little McCoy Creek	Harney	42.75	-118.56	5080	S-Midslope
	353526	Moon Hill	Harney	42.51	-118.4	6100	SW-Midslope
	353521	P Hill	Harney	42.82	-118.93	4860	S-Flat Hilltop
	353511	Riddle Mtn	Harney	43.1	-118.5	6352	S-Mtn Top
	353512	Wagontire	Harney	43.34	-119.88	6420	SW-Midslope
	353525	Foster Flat	Harney	42.97	-119.25	5000	Flat Lake Bed
	353517	Sage Hen	Harney	43.52	-119.29	4400	Flat Basin
637	**VALE BLM**						
	353612	Grassy Mtn	Malheur	42.63	-117.42	4000	NW-Midslope
	353613	Kelsay Butte	Malheur	43.9	-117.99	5187	SE-Saddle
	353614	Owyhee Ridge	Malheur	43.58	-117.23	4400	E-Knoll
	353616	Red Butte	Malheur	43.54	-117.84	4460	SE-Knoll
	353618	Alkali Flat	Malheur	44.09	-117.23	2495	Flat Basin

2012

Oregon Department of Forestry

Salem Weather Center

Fire and Smoke Management Operating Plan

OREGON DEPARTMENT OF FORESTRY'S SALEM WEATHER CENTER FIRE AND SMOKE MANAGEMENT SERVICES

LOCATION

Oregon Department of Forestry
2600 State Street
Salem, OR 97310

HOURS

The Oregon Department of Forestry's Salem Weather Center office hours vary depending upon fire and prescribed fire activity. The office is open from 0630 - 1700, five days a week between about November 25 - March 31 and July 1 - September 30. During the spring and fall burning periods, the office is staffed from 0630 - 1700, seven days a week. Exact dates of five and seven day-a-week service vary and are responsive to user needs for smoke management and other fire danger rating services.

STAFF

Nick Yonker	Meteorology Manager
Jim Little	Meteorologist
Pete Parsons	Meteorologist
Teresa Vonn	Fire Analyst

CONTACT

Telephone:

Nick Yonker	503-945-7451
Jim Little	503-945-7452
Pete Parsons	503-945-7448
Teresa Vonn	541-664-3328
Forecast Desk	503-945-7401
FAX	503-945-7454

Internet:

http://egov.oregon.gov/ODF/FIRE/fire.shtml

Email:

nyonker@odf.state.or.us
jlittle@odf.state.or.us
pparsons@odf.state.or.us
tvonn@odf.state.or.us

FORECAST AREA

The ODF Salem Weather Center provides services statewide, supporting prescribed burning/smoke management activities on nearly all private, state, county and federal forestland in Oregon. The fire weather zones that are serviced are described below in this operating plan. The Center also provides fire danger, fire severity and specialized weather (e.g. heavy rain or snow, debris flow) support to all ODF districts.

Note that prescribed burning on all forestland in Oregon comes under the jurisdiction of ODF Smoke Management Plan. Prescribed burning must follow the requirements of the Smoke Management Plan, regardless of the party or agency that is responsible for the ownership or management of the land. Forecasts and service provided by the National Weather Service should only be used for fire management purposes and not for smoke management approval.

AGENCIES SERVED

Oregon Department of Forestry (ODF)
Private forest land owners
U.S. Bureau of Land Management (BLM)
U.S. Forest Service (USFS)
U.S. National Park Service (NPS)
U.S. Fish and Wildlife Service (USFWS)
Bureau of Indian Affairs (BIA)

FORECAST SERVICES

GENERAL FORECASTS:

Fire Season: ODF meteorologists provide smoke forecasts during major wildfire events statewide on a case-by-case basis. Wildfire smoke forecasts are issued as needed. Special fire severity statements are issued on an as needed basis.

Prescribed Burning Season (which may overlap fire season): Smoke management forecasts and prescribed burning instructions and advisories are issued daily by 1500. Updated forecasts are released on an as needed basis, normally by 0800. Forecasts and burning instructions provide detailed information on a zone by zone basis. Forecasts describe the expected weather in detail for the next day and provide two to four day outlooks in more general terms. Three separate forecasts are issued daily for different areas of the state:

1. Western Oregon and the Deschutes National Forest (Zones 601-623)
2. Northeast Oregon (Zones 630-635, the Malheur NF portion of 636, and 638)
3. South-Central Oregon (Zones 624 and 625)

Open Burning Season: Open burning forecasts in support of the Oregon Department of Environmental Quality's open burning program for the Willamette Valley north of Lane county are issued by 0730 year-round.

Off-season: Forecasters issue forecasts or special weather statements as needed in support of special prescribed burning requests and safety of agency personnel.

SMOKE MANAGEMENT SPOT FORECASTS:

Detailed weather information beyond what is presented in the general smoke management forecast may be obtained with a spot forecast request. Smoke management spot forecasts are normally handled through oral briefings by contacting the duty forecaster at the forecast desk phone number shown above.

TELEPHONE BRIEFINGS

Telephone briefings may be provided by the ODF duty forecaster. These verbal weather briefings may be obtained at any time by calling the forecaster desk phone number shown above.

OTHER SERVICES

SMOKE MANAGEMENT TRAINING AND LECTURES

ODF forecasters are available to provide weather and smoke management training and program information at field locations. These sessions would generally have to occur during the seasons when prescribed burning is not occurring.

ANNUAL SUMMARY and ANNUAL OPERATING PLAN

The Smoke Management Annual Report is published by the staff of the Center. It provides a summary of prescribed burning activities for all landowners/land managers throughout the state.

An annual operating plan (this document) describing Salem Weather Center services, responsibilities, and procedures will be published each year. The operating plan is available on the ODF internet page shown in the "Contact" section of this plan.

GEOGRAPHIC ZONES

Forecast zones may be found at the following web site:
http://egov.oregon.gov/ODF/FIRE/images/FWZ.pdf

2012

NWCC Predictive Services

Operating Plan

NWCC Predictive Services

New For 2012:

- NWCC's experimental objective regional Preparedness Level forecasts

Predictive Services Mission

The Predictive Services Program supports the wildland fire community with information and decision support products. This typically includes a synthesis of fire danger, fire weather, fire intelligence, and fire management resource information.

Predictive Services Goals and Responsibilities

Predictive Services provides decision support and tools which enable proactive, safe and cost effective fire management. Predictive services actively partners with state and federal wildland fire agencies, cooperating agencies, research, academia, and the private sector to ensure the relevance of predictive services' products and program.

LOCATION

Northwest Interagency Coordination Center
150 SW Harrison St. Suite 400
Portland, OR 97201

OPERATING HOURS

FIRE SEASON (mid June through early October)
0700-1700 PDT 7 days a week

NON FIRE SEASON
0700-1500 PDT 5 days a week

STAFF

The NWCC Predictive Services program is interagency. It encompasses two meteorologists, a Fire Management Analyst and assistants, and a Geographic Information System (GIS) specialist and assistants from the different federal and state land management agencies.

METEOROLOGY

John Saltenberger	Fire Weather Program Manager	(503) 808-2737
Terry Marsha	Fire Weather Meteorologist	(503) 808-2756

INTELLIGENCE

Jason Loomis	Fire Management Analyst	(503) 808-2733
Isaiah Hirschfield	Intelligence Officer	(503) 808-2734
Detailer	Intelligence Detailer	(503) 808-2780

GIS

Barbra Haney	GIS specialist	(503) 808-2741

WORLD WIDE WEB

http://www.nwccweb.us/

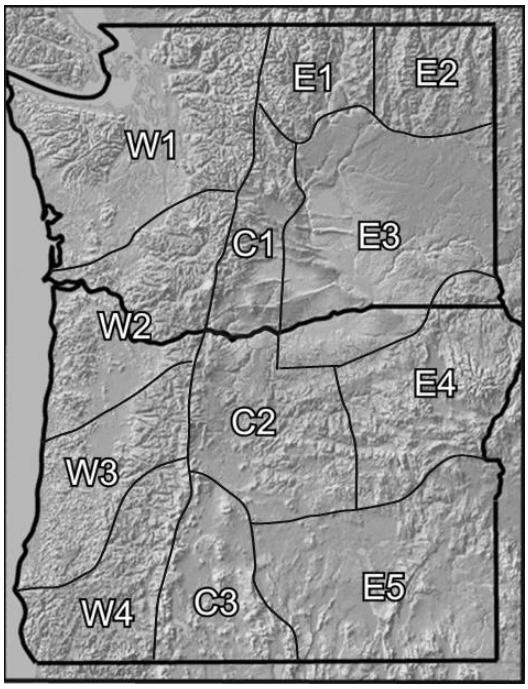
EMAIL

John_Saltenberger@blm.gov
Terry_Marsha@blm.gov

Jason_Loomis@nps.gov
Isaiah_Hirschfield@blm.gov

bhaney@blm.gov

PREDICTIVE SERVICE AREAS



Twelve Predictive Service Areas (PSAs) were designated from a climatological study of average daily relative humidity reports from NFDRS stations around the region. The study showed that relative humidity in each PSA varies at a slightly different rate than neighboring PSAs when the weather changes. Most of NWCC's Predictive Service products and fire potential outlooks are based on these PSAs.

72 " key" NFDRS sites within each PSA have selected to contribute to daily evaluations of average fire danger.

Note: The PSAs do not necessarily correspond with agency or unit administrative boundaries.

PRODUCTS and SERVICES

Predictive Services provides national and geographic area specific products designed to meet regional and national interagency needs such as GACC coordinators, Multi-Agency Coordination groups, NWS forecasters, as well as local users. Predictive Services analyzes situational information, fuels conditions and fire danger, fire weather, and ignition data in order to produce and disseminate fire potential decision support products. These products are produced so that fire managers can make timely and effective fire management decisions.

A. 7-Day Significant Fire Potential

The 7-Day Significant Fire Potential product combines fire weather, fire danger, ignition potential and resource status information into a projection of significant fire potential for the next week. PSAs anticipated to undergo an elevated risk of a significant wildland fire are denoted in red or orange "high risk" symbol depending on a variety of factors.

The daily 7-Day Significant Fire Potential product is available at:

Northwest: http://www.nwccweb.us/content/products/fwx/guidance/dl.pdf
National Map: http://svinetfc6.fs.fed.us/NPSG/staticmap.html

A detailed explanation of the 7-Day Significant Fire Potential product is at:

http://www.nwccweb.us/content/products/mobguide/7-Day Document.doc

B. Fire Activity Forecast

The Fire Activity Forecast summarizes anticipated fire load over the next five days by projecting:

- the number of new ignitions in each PSA
- the probability of new significant fires in each PSA

Additionally, the typical number of new ignitions and probability of new significant fires will be provided as reference for the 6 to 10 day outlook in each PSA.

The daily Fire Activity Forecast is available at:

http://www.nwccweb.us/brief

C. Regional Preparedness Level Forecast (experimental).

Preparedness Level for the Northwest geographic area is determined by the NWCC center manager and/or Operations Manager with guidance from the NWCC Predictive Services unit.

That guidance is based on objective assessment of the current demand and forecasts for future need of fire management resources from NWCC's fire activity forecast. Analysis of historical usage of fire management resources since 2004 was blended with numbers of reported ignitions and resulting large fires to model resource demand when similar conditions repeat themselves in the future.

The daily Preparedness Level Forecast is available at:

http://www.nwccweb.us/brief

D. Monthly and Seasonal Significant Fire Potential Outlooks

The Monthly and Seasonal significant Fire Potential outlook identifies geographic regions across the US likely to expect above average, average, or below average significant fire load during the next month and through the following three months. Significant fires are defined as those severe enough to require mobilization of firefighting resources from outside the area the fire originates.

http://www.nwccweb.us/content/products/fwx/MonthlySeasonal.pdf
http://www.nwccweb.us/content/products/fwx/MonthlySeasonal.ppt

A narrated audio/video webcast of the Monthly and Seasonal Significant Fire Potential outlook is available at:

http://www.nwccweb.us/content/Videos/index.aspx

E. Regional Fire Behavior and Fuels Advisories

When fire behavior is known or anticipated to be severe over a large section of the Geographic Area Predictive Services assists in the issuance of any fuels/fire behavior advisories.

F. Fuels and Fire Danger Information

Links to fuels and fire danger related information used to evaluate fire potential are located here.

http://www.nwccweb.us/predict/fire_fuel.asp

G. Intelligence reports

During fire season NWCC's Predictive Services intel unit publishes regular updates of fire activity, resource status, situation reports, and large fire maps at:

http://www.nwccweb.us/predict/intelligence.asp

A post fire season summary of regional fire activity is also available at the same link.

H. GIS

NWCC's Predictive Services GIS unit publishes documentation related to GIS support at:

http://www.nwccweb.us/predict/gis.aspx

I. Fire Behavior Decision Support Center

When significant fire activity is high and new large incidents are emerging rapidly, the Fire Management Analyst at NWCC will activate the Fire Behavior Decision Support Center with Predictive Services. The purpose of the Fire Behavior Support Center is to provide early/initial fire behavior analysis and decision support information during periods of heavy fire activity. The FBDSC will be staffed by qualified FBANs and LTANs or trainees working under the supervision of the NWCC Fire Management Analyst.

J. NWCC Predictive Services Fire Danger Rating Operating Plan and Supporting Documentation.

A detailed explanation of NWCC Predictive Services' fire potential rating system is located here:

http://www.nwccweb.us/content/products/fwx/fdrop/fdrop.pdf

AGENCY SIGNATURES / EFFECTIVE DATES OF THE AOP

This AOP shall be effective on the date the last signature is placed on this page and will remain in effect until the date the last signature is placed on this page the following year. Updates or amendments may be added in the interim upon agreement of all signatories. Usually the effective dates are May 1 through May 1 the following year.

Approved by:

Date: 6/6/12

Joe Shramek
Chair, Pacific Northwest Wildfire Coordinating Group

Date: 6/22/2012

Brad Colman
Meteorologist in Charge, National Weather Service, Seattle WFO
State Liaison Officer for Washington

Date: 6/12/2012

Steve Todd
Meteorologist in Charge, National Weather Service, Portland WFO
State Liaison Officer for Oregon

APPENDIX A

Links to Fire Weather Agreements and Documents

Interagency Agreement for Meteorological Services and other Technical Services

http://radar.srh.noaa.gov/fire/docs/2008_National_Agreement.pdf

NWS Fire Weather Services Directives

- Product Specifications (NWS Instruction 10-401)
  http://www.weather.gov/directives/sym/pd01004001curr.pdf
- On-site Support (NWS Instruction 10-402)
  http://www.weather.gov/directives/sym/pd01004002curr.pdf
- Coordination and Outreach (NWS Instruction 10-403)
  http://www.weather.gov/directives/sym/pd01004003curr.pdf
- Annual Operating Plan and Report (NWS Instruction 10-404)
  http://www.weather.gov/directives/sym/pd01004004curr.pdf
- Training and Professional Development (NWS Instruction 10-405)
  http://www.weather.gov/directives/sym/pd01004005curr.pdf
- Zone Change Process (NWS Instruction 10-407)
  http://www.weather.gov/directives/sym/pd01004007curr.pdf

- Western Region Forecast Office Fire Weather Services (WR Supplement to 10-401)
  http://www.weather.gov/directives/sym/pd01004001w042005curr.pdf

Electronic copy of the NWS D-1 spot forecast request form

http://www.wrh.noaa.gov/pdt/forecast/fireWeatherReports/spotRequestForm.pdf

National Mobilization Guide

http://www.nifc.gov/nicc/mobguide/index.html

Northwest Interagency Mobilization Guide

http://www.nwccweb.us/admin/publications.asp

Link to Washington DNR Fire Information

http://www.dnr.wa.gov/RecreationEducation/Topics/FireInformation/Pages/rp_fire_fireinformation.aspx

APPENDIX B

Forecast and Service Performance Measures

A. NFDRS Forecast Accuracy Performance Measures

The following performance measures are suggested as baseline standards for improvement over persistence forecasts on an annual basis for zone averages or key stations within a fire weather zone. The verification methodology will be consistent between all NWS offices (e.g. MAE, bias scores).

Parameter	Suggested Annual Baseline Goals Improvement over persistence forecast
Temperature:	35%
Relative Humidity:	25%
Wind speed:	10%

Wetting Rain: A "yes" or "no" field, correct 80% of the time as verified by the PD1 and PD2 forecast forecasts in NFDRS.

Lightning: A “yes” or “no” field, correct 70% of the time as verified by the LAL forecast. For verification purposes, an LAL forecast of 2 or more will be considered a “yes.” This verification effort will be a collaborative effort between NWCC and NWS.

B. Spot Forecasts for Wildfires, Prescribed Fires and other activities

Spot Forecast verification will be based on relevant agency provided observations at the fire site (e.g. a forecast for a 7 p.m. temperature must be validated by a 7 p.m. observation.) Suggested verification criteria are as follows:

Temperature:	MAE <=5 degrees Fahrenheit		
Relative Humidity:	MAE of following values:	RH 30%:	<= 4%
		RH 30-50%:	<= 7%
		RH > 50%:	<=10%
Wind Speed:	MAE <= 3mph for user defined measurement height (20 foot wind or eye-level).		

C. Red Flag Warning and Fire Weather Watch

Red Flag Warnings and Fire Weather Watches will be verified in accordance with NWSI 10-401 http://www.weather.gov/directives/sym/pd01004001curr.pdf and 10-401 WR Supplement. http://www.weather.gov/directives/sym/pd01004001w042005curr.pdf. Verification statistics will be included in the Annual Report.

APPENDIX C

Reimbursement for NWS Provided Training

IMETs and other NWS staff are frequently requested to provide fire weather training for fire crews as part of such interagency fire behavior courses as S190 and S290. Policy guidelines for fulfilling these requests are outlined in NWSI 10-403.

Requests for training by NWS personnel are not made using resource orders. Rather, both the USDA Forest Service and Department of Interior utilize training request forms that can be used by the NWS to obtain reimbursement for travel costs associated with the provision of weather training. The USDA Forest Service uses Form AD-672. The Department of Interior does not have a single, standard form. However, a template Form 1681-3 is included in the document linked below that can be presented to the DOI requestor. It is the responsibility of the requesting agency to provide an appropriate agreement document for training.

If the request for training comes via a state agency, the NWS must use a NOAA General Counsel template that can found by following the link at the end of this page. Training requests from California, Oregon and Washington do not need to use this form as their requests are covered by the same agreement used for IMET dispatches for those states.

There are no standard forms for gaining travel expense reimbursements from local agencies or colleges. Requesting agencies should pre-pay all travel expenses for instructors who must travel to the course, or at least cover lodging costs.

A secondary, more cumbersome option is for requesting agencies to reimburse the NWS by writing a check to the U.S. Department of Commerce for the amount of the travel voucher. If this is done however, the WFO must attach a "Gifts and Bequeaths Form" to the voucher prior to submission to their Finance Office. **Under no circumstances can the requesting entity personally reimburse the NWS instructor for travel costs.**

Training Reimbursement Forms for the USFS, DOI and States:

http://www.nwccweb.us/content/products/fwx/publications/NW_AOP/Training Reimbursement Forms.pdf

APPENDIX D – Incident Meteorologist Billing Points of Contact for Washington and Oregon

USDA Forest Service:
Elizabeth Martin
USDA Forest Service; Incident Business
101B Sun Avenue NW
Albuquerque, NM 87109

National Park Service:
Berkeley Yoshida
National Park Service - West Region
1111 Jackson Street, Suite 700
Oakland, CA 94607

US Fish and Wildlife Service:
Brett Fay
US Fish and Wildlife Service - Region 1
911 NE 11th Avenue
Portland, OR 97232-4181

Bureau of Indian Affairs:
Cory Winnie
Bureau of Indian Affairs - Northwest Regional Office
911 NE 11th Avenue
Portland, Oregon, 97232-4169

Bureau of Land Management:
Brenda Johnson
BLM Budget Analyst - Fire and Aviation
State Office/Regional Office
P.O. Box 2965
333 SW First Avenue
Portland, OR 97208

APPENDIX E - Spot Forecast Request Form D-1

WS FORM D-1 (1-2005) (Supersedes Previous Editions)

SPOT REQUEST (See reverse for instructions)

U.S. Department of Commerce NOAA National Weather Service

Please call the NWS Weather Forecast Office (WFO) when submitting a request and also after you receive a forecast to ensure request and forecast were received.
Please provide feedback to WFO on forecast.

1. Time†	2. Date	3. Name of Incident or Project	4. Requesting Agency

5. Requesting Official	6. Phone Number	7. Fax Number	8. Contact Person

9. Ignition/Incident Time and Date

10. Size (Acres)

11. Type of Incident
- ☐ Wildfire
- ☐ Prescribed Fire
- ☐ Wildland Fire Use (WFU)
- ☐ HAZMAT
- ☐ Search And Rescue (SAR)

12. Reason for Spot Request (choose one only)
- ◯ **Wildfire**
- ◯ **Non-Wildfire** Under the Interagency Agreement for Meteorological Services (USFS, BLM, NPS, USFWS, BIA)
- ◯ **Non-Wildfire** State, tribal or local fire agency working in coordination with a federal participant in the Interagency Agreement for Meteorological Services
- ◯ **Non-Wildfire** Essential to public safety, e.g. due to the proximity of population centers or critical infrastructure.

13. Latitude/Longitude:

14. Elevation (ft, Mean Sea Level)
Top: **Bottom:**

15. Drainage

16. Aspect

17. Sheltering
- ☐ Full
- ☐ Partial
- ☐ Unsheltered

18. Fuel Type: __Grass __Brush __Timber __Slash __Grass/Timber Understory __Other_____
Fuel Model: 1,2,3 4,5,6,7 8,9,10 11,12,13 2,5,8

19. Location and name of nearest weather observing station (distance & direction from project):

20. Weather Observations from project or nearby station(s): (Winds should be in compass direction e.g. N, NW, etc.)

Place	Elevation	†Ob Time	20 ft. Wind Dir	20 ft. Wind Speed	Eye Level Wind. Dir	Eye Level Wind. Speed	Temp. Dry	Temp. Wet	Moisture RH	Moisture DP	Remarks *(Relevant Weather, etc)*

21. Requested Forecast Period
Date

Start _____

End _____

Forecast needed for:
- ☐ Today
- ☐ Tonight
- ☐ Day 2
- ☐ Extended

22. Primary Forecast Elements (Check all that are needed) *(for management ignited wildland fires, provide prescription parameters):*

	Needed:
Sky/Weather	☐
Temperature	☐
Humidity	☐
20 ft Wind	☐
Valley	☐
Ridge Top	☐
Other (Specify in #23)	☐

23. Remarks (other needed forecast elements, forecast needed for specific time, etc.)

24. Send Forecast to:
ATTN:

25. Location:

26. Phone Number:
Fax Number:

27. Remarks (Special requests, incident details, Smoke Dispersion elements needed, etc.):

EXPLANATION OF SYMBOLS: † Use 24-hour clock to indicate time. Example: 10:15 p.m. = 2215; 10:15 a.m. = 1015
Indicate local standard time or local daylight time

WS FORM D-1, January 2005 INSTRUCTIONS:

I. Incident Personnel:

1. Complete items 1 through 27 where applicable.
   a. Example of weather conditions on site:

13. Weather Observations from project or nearby station(s):											
Place	Elevation	†Ob Time	20 ft. Wind		Eye Level Wind.		Temp.		Moisture		Remarks *(Relevant Weather, etc.)*
			Dir	Speed	Dir	Speed	Dry	Wet	RH	DP	
Unit G-50	1530'	0830	NW	6-8	NW	3-5	32		72		Observations from unit RAWS station, 50% cloud cover.

   b. If the incident (HAZMAT, SAR) involves marine, put the wave/swell height and direction in the Remarks section.
2. Transmit in numerical sequence or fax to the appropriate Weather Forecast Office. (A weather forecaster on duty will complete the special forecast as quickly as possible and transmit the forecast and outlook to you by the method requested)
3. Retain completed copy for your records.
4. **Provide feedback to NWS utilizing separate page.** Be sure to include a copy of the spot forecast with any feedback submission including forecaster's name. Feedback to NWS personnel is imperative to assist with future forecasts. Remember, feedback on correct forecasts is equally as valuable as feedback on incorrect forecasts! If spot forecast is significantly different than conditions on site, a second forecast may be required.

II. ALL RELAY POINTS should use this form to insure completeness of date and forecast. A supply of this form should be kept by each dispatcher and all others who may be relaying requests for forecasts or relaying completed forecasts to field units.

III. Forms are available from your local National Weather Service Weather Forecast Office. They may also be reproduced by other agencies as needed, entering the phone number and radio identification if desired.

NOTICE: Information provided on this form may be used by the National Weather Service for official purposes in any way, including public release and publication in NWS products. False statements on this form may be subject to prosecution under the False Statement Accountability Act of 1996 (18 U.S.C. § 1001) or other statutes.

APPENDIX F – Hysplit Request Instructions

HYSPLIT Trajectories is a model which determines trajectories for parcels at a given height above ground level. An easy method has been developed to take advantage of the base information that is already input into the spot request form to generate automated HYSPLIT Trajectory forecasts. The HYSPLIT trajectories can be used for many purposes (i.e. HAZMAT, smoke, etc.).

The HYSPLIT output represents computer model forecasts without any human interaction. They do not take into account information on burn size or fuels, thus generate trajectory forecasts for 500, 1500, and 3000 meters AGL without regarding whether fire plume height will reach that altitude.

To utilize this feature, simply add the word Hysplit and your email address into the remarks section of a spot request:

Example: Hysplit to very.windy@web.address

Any email address works.

It is recommended that you try this procedure and get a feel for its content before using it for actual guidance on a burn or fire.. For more information, please visit http://www.srh.noaa.gov/ridge2/fire/docs/HYSPLITone-pager_final_woSMEs.docx. If you have any questions, please contact your local fire weather program leader.